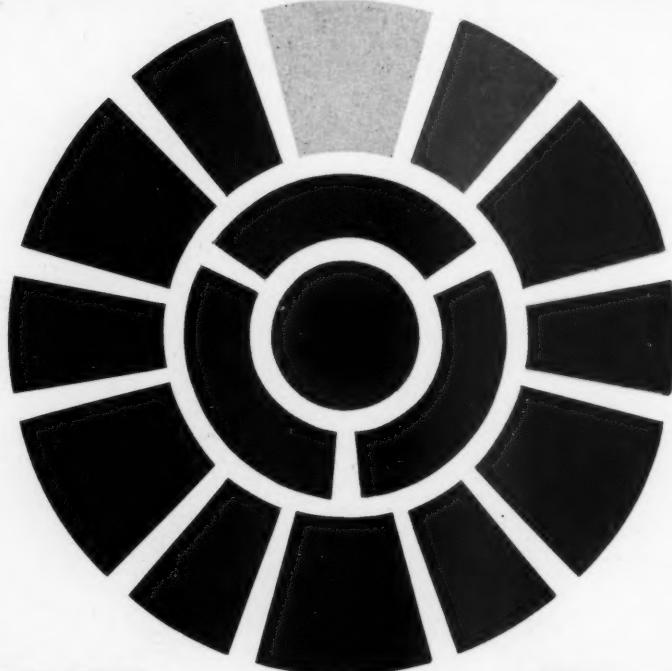


MINICAM

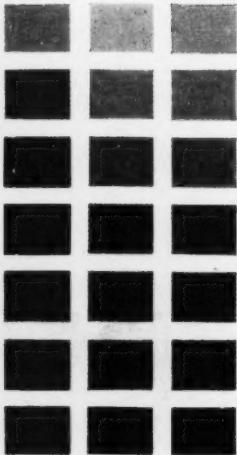
PHOTOGRAPHY

FEBRUARY

to Make Key Pictures — \$200 CASH



COLOR WHEEL



VALUES

1

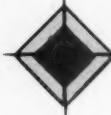
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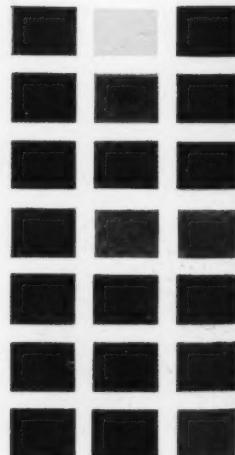
3



4



5



INTENSITY

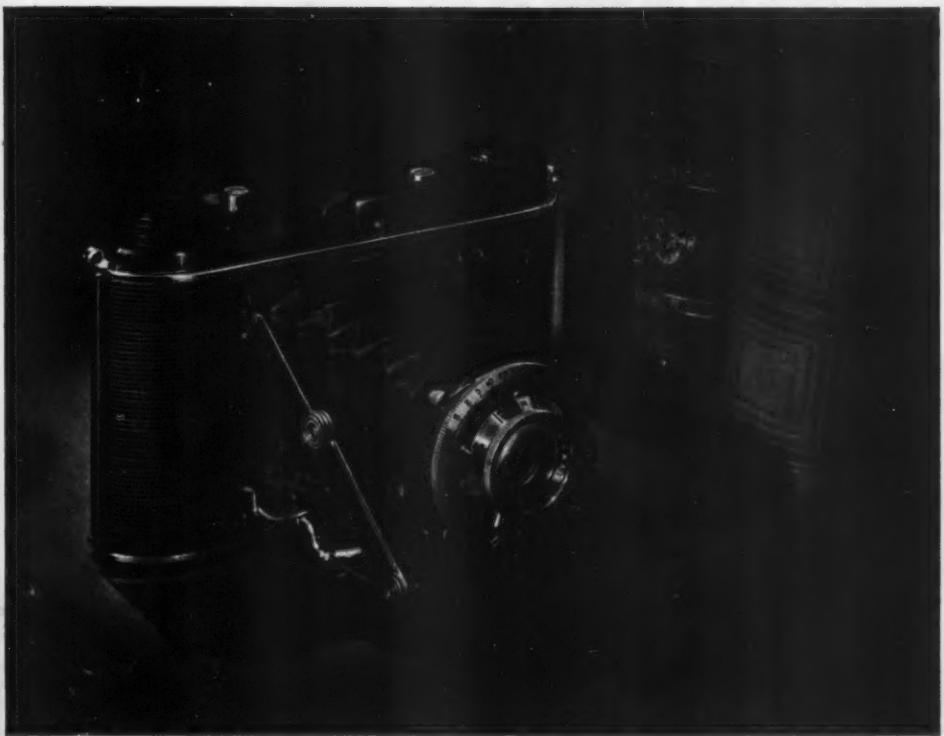
Color is life! With yellow, the brightest of colors at the top, the outer circle of the COLOR WHEEL shows the primary and secondary colors. Each color wedge is opposite its complementary color. The middle wheel shows the tertiary colors. The hub of the wheel is black for the absence of color.

The rectangles (1, 2 and 3) illustrate the effect of gray, black, and white on the primary and secondary colors. Looking at the red, for example, the gray background in

(1) tends to dull the red, and the black background (2) to brighten the red as compared with the effect of the white background (3).

Squares (4) and (5) illustrate the psychological effect of bringing various colors next to each other. "Intensity" measures a color's brilliancy. "Value" measures the lightness or darkness of a color. See the article in this issue by H. Crowell Pepper, "What Is Color?"

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We invite you to examine the Agfa Speedex — 1940's outstanding camera value — only \$27.50

OF recent American-made cameras, we believe none is a better value than Agfa's new Speedex. It is a compact, precision-built folding camera, thoroughly modern in construction, design, and picture-taking efficiency. Yet it sells for the remarkably low price of \$27.50!

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MADE IN U.S.A.



MINICAM

THE MINIATURE CAMERA MONTHLY • FOR EVERY CAMERA USER

EDITED BY WILL LANE, A.R.P.S.



Not Faked

Sirs:

If the "Human Fountain" is not faked (January MINICAM, page 6) what do you call this?

While visiting New York City, I could not resist taking a time exposure of the



skyline about five p.m. The lens was wide open at f4.5 and the exposure was five seconds with the camera resting snugly on the window sill of a friend's apartment.

I treasured this undeveloped negative

COVER

"Snow Witches" From Kodachrome by Henry Clay Gipson

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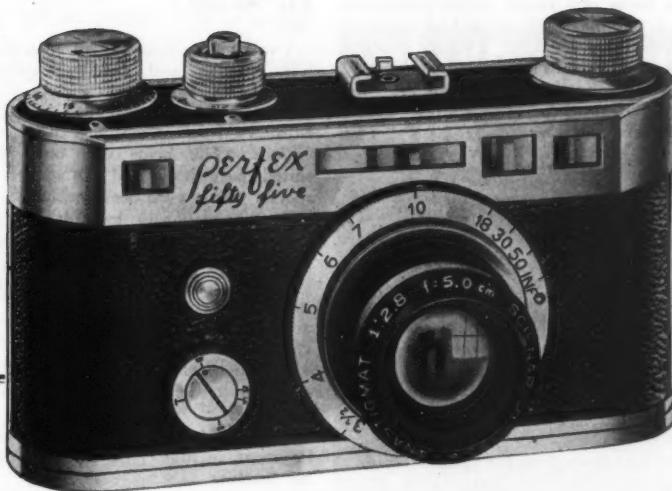
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1940
MODEL



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until I got home and found to my embarrassment that a photo-flood snapshot had somehow been taken on the same film. Dismay changed to pleasure when friends said they thought the double exposure effectively captured the spirit of the city and of a charming New Yorker I had met there.

W. A. ATLAS.

Louisville, Ky.

"Clip and File"

Sirs:

I clip and file magazines for ready reference. The trouble with MINICAM is that there are so many valuable articles that demand permanent filing that these articles sometimes appear on opposite sides of the same pages. You ought to print on one side of each page only.

C. S. LONGMAN.

New York City.

Reader Longman is in for further temptation to clip MINICAM pages with the beginning this month of the new feature "Photo Data Clip Sheets." (See page 20). He might emulate libraries which order two copies, one for clipping and one for filing intact. Or copy of the pages by simple contact printing as described on page 60.—Ed.

Ads Tell All?

Sirs:

I've been looking for an enlarging easel that was efficient and easy to operate yet was not too expensive. When I saw a Camera Exchange's ad on page 132 of a recent MINICAM I felt it was just made to my specifications. The price was only \$6.95, which suited me exactly, and the ad described all the special features I'd been seeking.

I was preparing to order it when I discovered that one of the most important facts about it had been omitted from the ad. Nothing whatever was said about the maximum size of the paper it would handle. If it'll take nothing larger than 5x7 I can't use it. Of course I can write to them and ask about it—but there are other dealers and manufacturers who aren't so secretive, so why should I bother?

If an advertiser wants to sell me something he must include ALL the information about his product.

BRUCE COLE.

Clarinda, Iowa.

Photographing Birds

Sirs:

In December MINICAM, (p. 46-47), an article on photographing birds in winter recom-

Hollywood's Latest . . . For Better Pictures New "DINKY INKIE" Light



\$15

Ht. 7 $\frac{1}{4}$ ". Diam. 5 $\frac{1}{2}$ "
Wt. 2 $\frac{1}{4}$ Lbs.
With 15 ft. of cord.

. . . Powerful All Purpose 100-
150 Watt Spot Light
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Here at last is a powerful yet small-sized, light-weight, inexpensive, all purpose light—to high-light portrait subjects and for greater flexibility in modeling close-ups; to eliminate shadows and dark corners in indoor movies. Easy to carry and set up on your tripod; locks in any position. Operates in absolute silence. Will not heat up excessively even after hours of use. Light output will focus from an 8-degree spot to a 44-degree flood. Lever arm, protruding from both front and rear, is moved from side to side for focusing spot to flood. Numbered graduations enable duplicating a given focus position. The "DINKY-INKIE" is the "rave" of Hollywood cameramen because it supplies so many lighting needs. At only \$15.00—how can you do without it?

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HOLLYWOOD

CALIFORNIA

mends that suet be placed in a wire-mesh basket.

Speaking from many years experience and observation I do not consider it wise to use metal of any kind in connection with a bird feeder. There are much better systems. A bird's eye or tongue, on frosty days, is liable to touch the metal and freeze to it with serious consequences. . . .

There seems to be a complex among photographers that large equipment with long focus lenses is necessary for wild life pictures. For my part I never obtained first grade bird pictures until I discarded the "blunderbusses" and commenced using a small camera with short-focus lens. By far my best pictures, and I have taken thousands, have been secured with a series 11 Rolleicord.

HUGH M. HALLIDAY.

Toronto, Ont.

"Test Your Shutter"

Sirs:

I found the article "Test Your Shutter" a very interesting one. (Jan. MINICAM, p. 41.) However, there was an error, due no doubt to faulty typesetting, and should have been written thus:

Step 1. To calculate the first time, divide the distance the ball fell in feet (4 ft.) by 16. Four divided by 16 equals .25.

Step 2. Take the square root of .25. This is .5.

This means that it took the ball .5 seconds to fall four feet.

The article, otherwise, is perfectly correct.
J. L. FLEMING.

Hartsville, S. C.

Reader Fleming is right, and our thanks go to him for correcting the typographical error in the example quoted.—Ed.



"Wish she'd stop so I can focus this telephoto split-image rangefinder."

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"Slow or Fast?"

Sirs:

I have always been under the impression that the faster the drying of a film the finer the grain, everything else to be equal. Now I have been told that miniature camera negatives should be dried slowly. Which is correct, slow or fast?

ALBERT BEYERS.

St. Joe, Mo.

Fairly rapid drying is recommended, about 20 minutes to one hour unless one of the film drying solutions is used.—Ed.

Picture Agency

Sirs:

In delightful anticipation I read through your article "Can Agencies Sell Your Pictures?" (January issue). On and on to the bitter end I went and, to my utter dismay and disappointment, I searched in vain for Harris and Ewing, 350 Madison Ave., New York City.

For well on to forty years we have been photographing national notables and events down in Washington, D. C. for distribution among leading newspapers and publications? Over the years, we must have assembled some 4 million or more negatives, in conjunction which we have gathered an extensive file of

miscellaneous stock subjects. In fact, right at this moment we are gathering photographs from all over the world, to satisfy the demand of our clientele.

Your omission of Harris and Ewing from the list of photographic news syndicates is almost akin to ignoring Tiffany in a list of quality jewelers. How could you ever have committed such a breach?

MR. KELLEHER.

Harris & Ewing Co.

Ihagee

Sirs:

Just to keep the records straight, Ihagee is not pronounced *eye-hah-gee*, as announced in the Lexicographer's Lair of your December issue.

This much mutilated word is a synthetic trade name composed of three letters of the German alphabet: I, H, G. As you know, these would be pronounced *ee-hah-gay*, and the word would have no accent, just as COD has none. Many trade names in English so put together might be treated as Ihagee is. For example, GE might be written jee-ee (Heaven forbid!).

CLAUDE SCHAFFNER.

New Haven, Conn.

"Ee-hah-gay" it is.—Ed.



H16—16mm. with Leitz Hektor, f:1.4.....\$295
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"Prize Winner"

Sirs:

This picture of our baby has won two first prizes in newspapers. She is Karen Kay Phillips—17 months old daughter of Mr. and Mrs. Gordon Phillips.



The camera was a Reflecta taken at f4.5, 1/25th second. Two No. 2 photofloods used and one No. 1 spot light.

GORDON PHILLIPS.

Rockford, Iowa.

"Costly Flash Lesson"

Sirs:

I have just learned a rather costly lesson—never store flash bulbs in the darkroom. I was loading film when suddenly something dropped from the shelf and FLASH, the negatives were ruined.

Yes, a bulb had fallen to the floor and ignited, altho the impact did not break the glass.

WALTER ANDREWS.

Covina, Calif.

Photograph Salon Walls?

Sirs:

I have been in the habit of making snapshots at photographic exhibitions in order to create a record for myself of the pictures I like best. Using Agfa Superpan Press film and exposures from 1/25th of a second to 1 second with the lens wide open (f3.5) I have made many prints suitable for my purposes. By leaning against a wall or pillar I find it possible to get negatives sharp enough even at 1 second exposures to make 4x5 inch enlargements.

This size is very handy for reference, for carrying in your pocket, and for bringing out during picture discussions with other fans. The small prints naturally are valuable only



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f3.5

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I always ask permission before shooting and am careful to avoid disturbing people who are looking at pictures. The other day, however, one of the salon judges refused permission, explaining that the snapping of salon prints was not desirable.

I think that those salons which do permit it ought to advertise the fact and to encourage the constructive use of copying in this manner. Several members of our camera club are thinking of doing the same thing. . . .

ALBERT N. GRAYDON,

Los Angeles, Calif.

MINICAM asked for opinions and before going to press, already had received the comments reproduced below:

Sirs:

It seems to me that such procedure would be very annoying to the people who come to see an exhibit. . . .

Aren't the photographic magazines better places to obtain these reproductions? I believe so.

LEO NEJELSKI.

Chicago, Ill.

Sirs:

I see no reason why officials of exhibits should not be agreeable to this practice nor see any harm from the exhibitors' standpoint to visitors copying their prints. . . .

I do not believe that salons could provide sufficient illumination on salon walls to make snapshots possible. It is very likely that the intense illumination would tend to wash out and destroy the subtle textures and quality of the exhibition prints to say nothing of being a strain on the eyes of visitors. . . .

I would feel that the use of flash bulbs could in no way be objectionable, especially as this would undoubtedly be the most practical and efficient means of getting the necessary exposure.

KARL A. BARLEBEN.

New York City.

Sirs:

From my own experience, I believe that practically every salon prohibits the taking of such pictures. You must also bear in mind that some people who submit prints to a salon restrict reproduction and if the salon allowed photographs to be made, they would have to have some Guardian Angel hovering about to see that the photographer took certain pictures and not others.

With reference to the advisability of allowing such practice, I am frankly very much op-

posed to it. I think it entirely unnecessary for the reason that if an amateur wants to make a file of some kind of successful Salon prints, he need not resort to this method. I myself, keep a scrapbook in which I paste photographs which have been reproduced in magazines and in Salon catalogues. I select those prints so reproduced which appeal to me personally, and anyone could use this method for building up a very interesting file of very fine reproductions.

STANLEY A. KATCHER.

New York City.

Sirs:

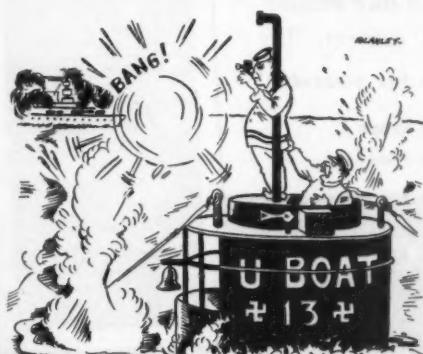
.... A compromise arrangement might be reached whereby visitors were permitted to photograph pictures during certain hours, when there are the fewest visitors in the gallery.

An alternative suggestion which is already followed in some salons is that the entrants in the salon be requested to place a sales price on each print. This price could then be placed in one corner of the mount, or in the salon catalog. The committee would send the print to any purchaser at the close of the salon. The money would be collected during the salon and ten or fifteen percent would be retained by the salon committee. Since the average sales figure where this plan is attempted ranges from \$3 to \$10, the expense is not too great for the pocketbook of the average person.

Another merit to this plan lies in the fact that people would gradually be able to accumulate a collection of original photographs by some of the outstanding salon workers of this country. This would be more interesting and more valuable than copies made from the original hung on the wall.

FENWICK G. SMALL.

New York City.



"Shoot, Fritz, and quit worrying what exposure to use."

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New 4x4 cm. Rolleiflex, Zeiss Tessar f/2.8 lens, Compur Rapid shutter, without case, now only.....	127.00
Model II Rolleicord, Zeiss Triotar f/3.5 in Compur shutter, without case, now only.....	90.00
Model Ia Rolleicord, Zeiss Triotar f/4.5 lens in Compur shutter, without case, now only.....	67.00

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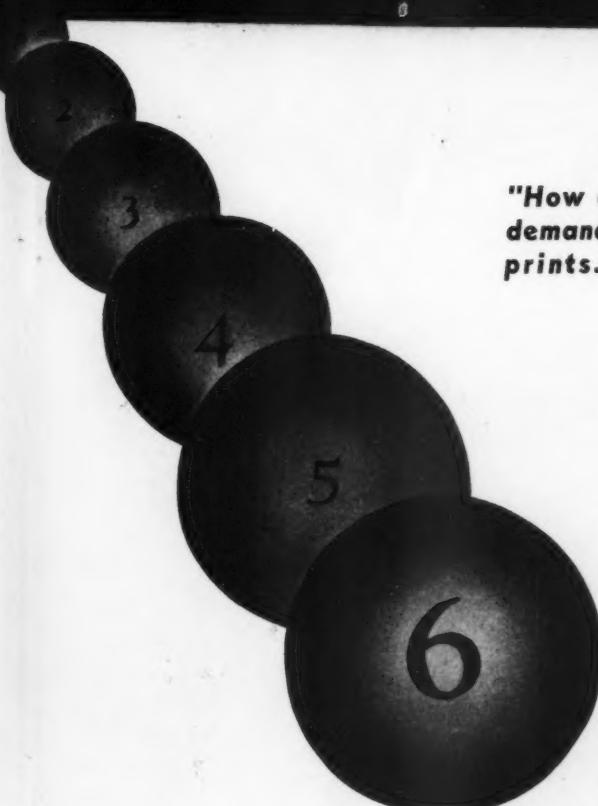
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MAZDA PHOTOFFLASH LAMPS

**A G-E PEAK
for every need!**





"How do you do it?" amateurs
demand on seeing Nejelski's
prints. Here is his answer

By LEO NEJELSKI

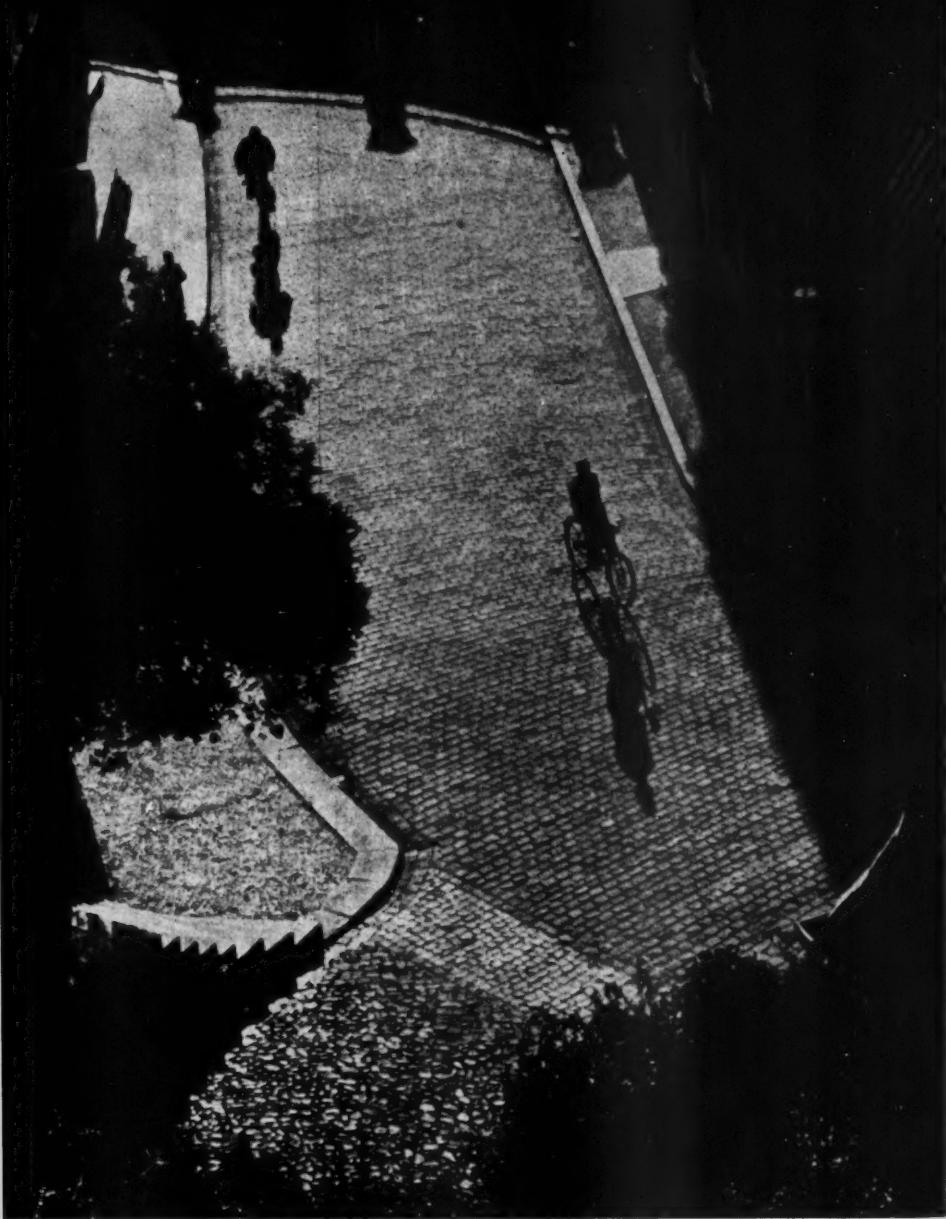
Rules for PICTURE SUCCESS

A WISE teacher warned there is danger in over-simplifying a subject, yet I am going to over-simplify what I have to say. I feel I am justified in doing this because in talks with amateurs just out of the beginner class I sense that they confuse themselves so much with details that they overlook the broad principles of photography.

With the broad principles of a subject in mind, details become much more meaningful and helpful than when they are considered haphazardly. Stated in another way, broad principles help to bring meaning and direction to a chaotic mass of details. The principles outlined here will

assist you in harnessing the details and in directing them to your purposes.

Rule 1—Know your instruments and your materials. Even at the risk of boring you by repeating what has been stated previously in this series of articles, I urge you to know your camera . . . know the film you are using . . . know your developers and your papers. Many photographers expect to make masterpieces before they know how to use their tools. This knowledge does not come without experience. Experience, in turn, can be speeded up by study and experimenting.



Rule 1. (Above) Know your instruments and your materials. Without a complete mastery of his camera and film, W. R. Bawden, England, might have missed this spontaneous picture, its beautiful, but accidental arrangement and the perfect detail in both the shadows and the sunny areas. Another instant and this picture would have been gone forever. Only a knowledge of camera, films and equipment can produce perfect negatives.

Rule 2 (Next page) Start with an idea. Robert Osborne, who made this picture, titled it "Little Immigrant," thus indicating very definitely exactly the mood and the spirit he wished to capture in the final picture. The shawl, the wistful look and the wondering expression of the child . . . all contribute to capturing the idea started with and all, in turn, contribute to the unmistakable impression conveyed to the person seeing it. Without a basic and underlying idea, this picture could never have been created. From the N. Y. Salon.

Remain keenly interested in the subject. Study. And experiment. Risk a picture now and then, particularly if you have not made one similar to it before. This experimenting also broadens your knowledge of what your camera, films,

developers and papers can do.

Without a basic knowledge of your instruments and your materials you will find yourself constantly uncertain of yourself. And when you are confronted with a hard-to-get picture, you are apt to miss it.



Also, when time is a factor you may waste your opportunities if you have to worry about what the speed and aperture should be and, before you can get set for the picture, the action may be over forever.

I will never cease being grateful to the portrait photographer who gave me a chance to learn the rudiments of photography in return for such help as I could give him loading plateholders, developing plates, making proofs, prints and enlargements. That was over twenty years ago. But the details of that experience cling to me even today, and prove constantly more valuable with passing time.

Rule 2—Start with an idea. When your picture develops out of an idea you will find that such a picture will bring back vivid memories of the thoughts and emotions that coursed through your mind during the period when the picture was being planned and made. Such pictures are charged with thoughts and emotions because they imprison within them the spirit of the events as well as the cold facts.

To be sure, the main ability of the

Rule 3. (Right) Look at everything as though you were seeing it for the first time. Millions of photographers would have passed this by. Yet Hans Kaden saw it and responded. Whether he thought it consciously, or not, he must have felt the drama of the struggle between the drifting sand and the bush helpless to ward off the piling up that must kill it eventually. The rhythm of the sand and the long shadows of the bush heighten the impression of the struggle. A fresh eye will discover countless such picture opportunities.

Rule 4. (Below) Be yourself. This picture, like most of those made by J. Ghislain Lootens, is strongly individual. First of all, Mr. Lootens saw a dramatic picture in a piece of fabric. He was not swayed from his conviction merely because such a picture had not been made before, except rarely. Secondly, he saw an opportunity to create a picture that is sheer design and has no deeper substance, a difficult problem. But because he dared to be himself he succeeded on both counts.

camera is to record detail. However, details can be manipulated and selected so that they are subordinated or accentuated to emphasize the main thought in the mind of the person making the picture. Without interpretation, without an idea back of it, a picture is but a record. While record photographs are valuable when made for that purpose, even a record photograph becomes more meaningful and interesting when actuated by a mood, an idea, a thought.

Starting with an idea, one is more able to convey that same idea to others. It is the significance of pictures to others that makes them valuable.

To share your enthusiasms, fears, ambitions and gratifications with others, begin by capturing these emotions in your pictures. In the process, you may create a picture to be liked and appreciated by many people. When this happens, you can be certain deep down in your mind that you have created a great picture.



Rule 5. Simplify. This picture carries simplification to a justifiable extreme. What added detail is needed to set our own thoughts into motion and to cause us to want to exchange places with the man here on the stern-wheeler? The elimination of detail causes the eye to fasten on the man, the water wheel, the water itself and the city across it. Through the association of these elements, our minds create a story and a desire. Details would have made this picture less direct and forceful. Photo by Sid Maresan, made at 7 a.m., Panatomic X, 1/25th at f/8, Rolleiflex camera, in DK-20, overdeveloped 40 per cent.



Rule 3—Look at everything as though you were seeing it for the first time. People travelling in a new country see everything excitedly and with a fresh viewpoint because they are seeing people and sights for the first time in their lives. Their enthusiasm usually is so great that they must make pictures of every phase of their new seeing.

Cultivate this habit in all your seeing. Look at everything as though you are seeing it for the first time, with fresh eagerness and enthusiasm.

Approaching every day, every trip, every picture-making experience with fresh sight, you soon will discover new beauties all about you. Everywhere you go there are hundreds of pictures. A person who creates such seeing habits in his picture-making soon discovers that the habit carries over to his daily living and brings with it added zest and enthusiasm.

Seeing freshly is a constant challenge. It will lead you to experiments that would never occur to you without this basic enthusiasm and confidence. Seeing everything as though for the first time also leads to progress. The world would become dull and uninteresting without innovators in thought and in action.

Rule 4—Be yourself. Have confidence in yourself. It is only when you make a picture that appeals to you very much that you stand a chance of making one that appeals to many people.

Imitating others leads only to an imperfect copy. Such picture-making lacks the spark that yields originality because it is neither sincere nor convincing. It also lacks the compelling fire which results only from an immediate recognition that the picture was made because the maker was motivated by a deep conviction that he could not pass it by.

Please yourself first. Only by pleasing yourself can you please and move others.

Pictures that are made out of lukewarm convictions betray their emotional content to the persons looking at them. They are lukewarm in their appeals and in their reactions.

By being yourself you have an excellent chance to capture originality in your pictures. Your own individualities, your own peculiar way of looking at things—these will appear in each picture despite all you might do to conceal them. So why not give in to them completely?

Rule 5—Simplify. Nature is chaotic. Out of this chaos you must select details with order and meaning. The easiest way to accomplish this is through simplification.

Simplification may be accomplished by selecting the proper viewpoint, or viewing point. A low perspective that tends to place the person being photographed against the sky instead of a background of confusing buildings is one means of simplification. The deliberate choice of a plain background is another way.

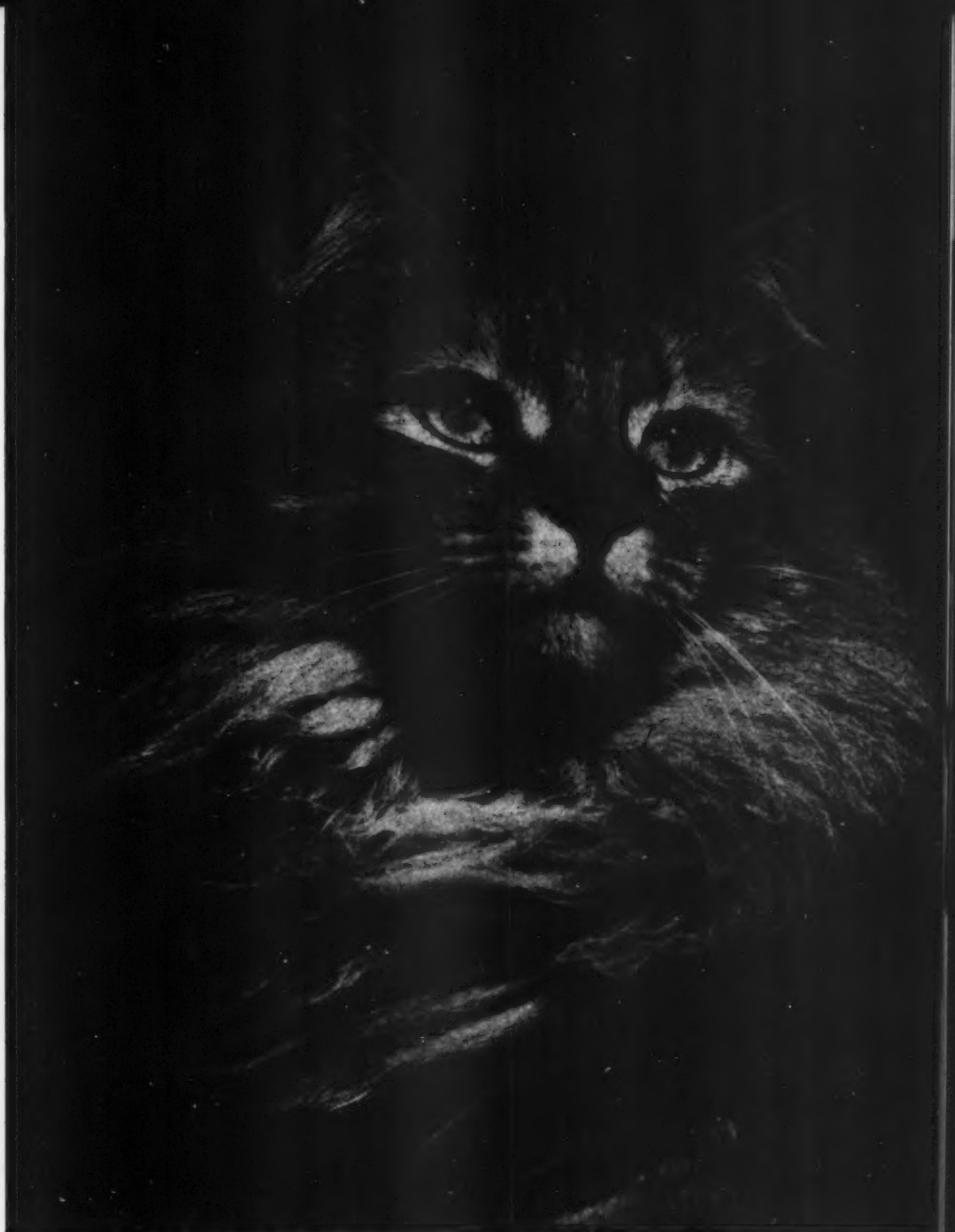
Closeups are always helpful, too. Of course, if you get too close you will distort the shape and size of the nearest objects. But do not let this worry you too much. Most people err too confusedly in the other direction.

While simplifying, try to get some pattern into the arrangement of the details in the photograph. The eye follows and understands an orderly arrangement much more easily and quickly than it does a jumbled one.

Try for simple geometrical designs at first—a cross, an L shape, a letter S, a circle, a triangle. If you are picturing a mother and her babe, have the mother look at the baby. We are all curious. We want to see what others are looking at. This leading of the eye to a point of interest automatically simplifies a picture. Try hard to simplify. You can seldom simplify too much.

Rule 6—Strive for perfection. Do not take this as free license to shoot promiscuously with the hope of getting one perfect picture. Rather, take it as encouragement to strive carefully and thoughtfully to obtain a picture that portrays exactly what you have in mind.

Speaking from personal experience again, there are times when I make only one negative. But that happens rarely and

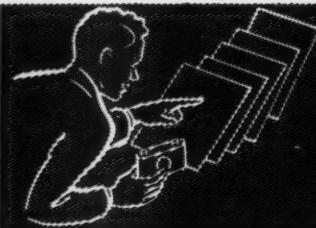


Rule 6. Strive for perfection. Thousands upon thousands of pictures have been made of cats. However, this one by John Oldermann ranks with the finest that have ever been made. It captures the majesty, the curiosity and the mystery of the species. It is far more than a record photograph of a cat. It conveys the universal qualities that apply to all cats. Without a deep desire to achieve perfection, this picture would have been of the same caliber that characterizes the thousands of cat pictures made each year.

only when I have a deep, unshaken conviction that I have captured exactly what I had striven for.

More frequently I make several nega-

tives. Each one, however, is made with care and thought. In fact, each one is made with the same care and same thought that would be *(Page 99, please)*



MINICAM Magazine's PHOTO DATA *Clip Sheets*

REDUCTION

AN over-exposed negative that is developed fully, is likely to lack contrast and be too dense for easy printing. On the other hand, an underexposed or normally-exposed negative if overdeveloped may build up too much contrast. The remedy for such conditions is reduction.

Prints that are too dark also can be reduced in the same manner.

The process of reducing a negative consists of dissolving away some of the silver image with chemicals. The reducer can be chosen so that it reduces the image uniformly, or affects mainly the highlights.

1—For reducing overexposed negatives where the need is for less density and more contrast:

FARMER'S REDUCER

Stock solution—

(a) Water	8 oz.
Potassium ferricyanide273 gr. ($\frac{1}{2}$ oz., 55 gr.)
(b) Water	32 oz.
Hypo (Sodium thiosulphate)	8 oz.

To reduce a negative: Add 1 part of (a) to 4 parts of (b), and then pour 28 parts water into this. Pour the mixture quickly over the negative, to insure even action. Watch the negative closely, and when the image looks about right, remove the negative and rinse in clear water. Wash well and dry.

For overexposed, fully developed prints, use in same manner. A smaller proportion of water can be used for faster action.

2—For overdeveloped negatives, where image is to be bleached proportionally:

FARMER'S TWO-BATH REDUCER

(a) Water	8 oz.
Potassium ferricyanide27 gr.
(b) Water	8 oz.

Hypo (Sodium thiosulphate)

1 oz., 300 gr. ($\frac{1}{2}$ oz., 82 gr.)

To reduce a negative, place it in (a) for 1 to 4 minutes, then transfer to (b) for 5 minutes. Wash thoroughly and dry. Repeat if necessary. The amount of reduction with one treatment varies with the time in (a). For removing fog from a negative, use this process, but dilute (a) with an equal volume of water.

3—For negatives of contrasty subjects which have been overdeveloped:

ACID-PERSULPHATE REDUCER

Stock solution—

Water	8 oz.
Ammonia persulphate	$\frac{1}{2}$ oz.
Sulphuric acid (concentrated C. P.)	11 minimis (approximately 11 drops)

To use, dilute the stock solution with twice its volume of water. Immerse negative, and when reduction appears sufficient, place the negative for 5 minutes in an acid-fixing bath, and then wash and dry as usual.

Reducers, like other photographic solutions, usually work best at 65 to 75 degrees Fahrenheit.

When mixing acid solutions, always add the acid to the water slowly, with constant stirring. Do not add water to acid or it may spatter dangerously.

In above formulas and others of this series, weights are repeated in parentheses when possible, in units that make weighing with a standard darkroom scale easy.

Before and after prints from a negative treated with Farmer's reducer (Stock No. (A), 1 part; Stock No. (B), 1 part; Water 28 parts).



A NEGATIVE grade of intensifying up to silver grain chromium intensifying (1)—In contrast.

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(1)
Print from no only expos but underdeve oped negative.

(2)
Right S em negative, after intensification produced the print.

INTENSIFICATION

A NEGATIVE that is too thin and soft to produce a satisfactory print on any grade of paper often can be saved by intensification. This process consists of building up the weak image by depositing on the silver grains some opaque material such as chromium or mercury. Two results from intensification can be controlled as required. (1)—Increased density, (2)—Increased contrast.

Although there are numerous intensification processes, those employing chromium or mercury are the most popular. The chromium intensifier is more gentle in action; it increases the general density of the negative without increasing the contrast excessively.

CHROMIUM INTENSIFICATION

Stock solutions—

(1) Water	8 oz.
Potassium bichromate	190 gr. ($\frac{1}{4}$ oz., 80 gr.)
(2) Hydrochloric acid...380 minimis (0.8 oz.)	Water to make..... 8 oz.
When ready to intensify, mix—	
Stock Solution No. 1	1 oz.
Stock Solution No. 2	1 oz.
Water	6 oz.

Immerse the negative in this until the image has bleached as far as it will go. Then wash 5 or 6 minutes in water, until the yellow stain from the bichromate disappears.

Finally, place the negative in a non-staining developer that does not contain an excess of sulphite, for about 5 minutes. This step must be performed in white light, either artificial or natural. After redevelopment, wash thoroughly and dry.

REMARKS:

The degree of intensification can be varied by using more or less of Stock Solution No. 2, and by regulating the time of redevelopment.

Do not use a fine-grain developer high in sulphite for redevelopment.

Discard the bleach after use.

Be sure the negative is well fixed and washed at least 20 minutes before attempting to intensify it with chromium.

MERCURY INTENSIFICATION

This process is more vigorous in action than that involving chromium, and is capable of giving great increase in contrast and density.

Mix the following bleaching solution:

Mercuric chloride ($HgCl_2$)	81 gr.
Potassium bromide	81 gr.
Water to make.....	8 oz.

Immerse the negative in this solution until the image has turned white. Then remove and wash completely. There are various baths for blackening the image. These include the following, arranged from the most active down:

- 1—Ammonia (28%)
- Water 1 oz.
- 2—A standard developer, such as Eastman D-72
- Stock 1 part, water 2 parts.
- 3—Water 8 oz.
- Sodium sulphite (anhydrous)..... 1 oz.

After treatment in one of these, wash thoroughly and dry.

REMARKS:

The mercury bleach can be used over and over.

The process can be repeated for greater density.

The mercury salt is highly POISONOUS, and should be handled accordingly.

Intensification of any kind is generally applied to underdeveloped negatives rather than underexposed. A negative image can be treated with reducer first to decrease fog or contrast, and then intensified. Thus, with reducers and intensifiers, you can manipulate negatives to give a wide variety of contrast and density.

(1)
Print from normally exposed but underdeveloped negative.

(2)
(right) Same negative, after intensification, produced this print.





Fig. 1. How NOT to do it. When the photographer says, "Look pleasant, please," the result is likely to be a posy, blank and starey attempt to look pretty. The blankness in this case is emphasized by the shadow over the right eye which gives the model the appearance of a black eye.

PICTURE personality can be developed.

There is one basic reason for the failure of many subjects to photograph interestingly. It is their fear of not taking a good picture.

When the lensman clicks the shutter, these subjects do not express any definite thought in their eyes. Their attention is divided between trying to forget the camera and worrying about a possible bad result.

This division of attention nearly always results in a blank, uninteresting expression.

The technique of a play director elicits the "over the footlights" expression that puts over a picture

By JOHN HUTCHINS, A. R. P. S.

Illustrated by the Author

It is not sufficient for the photographer to say, "Now relax. Forget that I am taking your picture." He must give the subject some definite thing to think about. He should, by various suggestions, bring out the expression that he has already decided, in advance, that he wishes to capture.

It is very poor psychology to advise a friend "not to worry", or tell him, "You are foolish to worry because it will not help you out of your difficulties".

The intelligent psychologist would invite his friend out to dinner and perhaps a show. In other words, he would be definitely giving his friend something else to think of.

The photographer must learn, therefore, to give his subject something tangible to think of in order to bring out the expression he wants in the finished print. Let us discuss a concrete example of this form of suggestion.

Fig. 2 is a study of Miss Judith Russell as a Venitian Scholar, about 1520. This type of picture is extremely difficult to take because the subject is looking almost directly into the camera's lens. We are able, therefore, to look directly into the eyes and if there is not a definite expression there, the picture is desired to be uninteresting. Naturally, the position of the hands and the body and a slight turning of the head to one side and also the

How I Dramatize



Fig. 2. "A Venetian Scholar, about 1520." Period pictures demand the utmost in dramatization to make the model *feel* he, or she, is the character being portrayed. Defender XP pan, $\frac{1}{2}$ second at f/16.

PICTURE PERSONALITY

feather touching the side of the chin, immediately suggests reflection.

Before taking this picture, I asked myself what a scholar of that period might be doing, and suggested to Miss Russell that she take the general position that is in the picture but leave the feather resting on the book. I then lighted the picture while Miss Russell's eyes were closed and we wrote out several lines of dialogue for her to repeat just as she raised the feather to her chin with her right hand, and opened her eyes in the general direction of the camera. As near as I can remember, the lines she was actually repeating at the moment were, "I wonder if I have misspelled the last word I wrote." During the exposure, she kept repeating these words, over and over in her mind.

Every one who looks at this picture will undoubtedly interpret in his own way what she is thinking, according to what they think they see. The important thing, however, is that the expression in her eyes there is evidence of some definite thought, which apparently fits this type of picture.

In Fig. 3 I have attempted to catch the expression of a respected church deacon "caught in the act" of stealing a snuff of snuff before the services begin.

First of all, I explained the situation to St. Clair Bayfield, illustrating the general position of the hands and body. Then I focused the camera and stopped down the lens sufficiently to allow for any possible movement of the model, backward or forward. He then looked down at the snuff box and began to take a pinch of tobacco. With the bulb in my hand at the left of the camera, I arrested his attention with, "So—you're at the snuff box again—eh—Deacon?" He turned toward me and mentally repeated over and over again a line which we had decided upon in rehearsal, "Well! That's my own affair, my good man!" Naturally, I used quite a lot of light in order to employ the fast portrait exposure of one-eighth of a second.

When I light a picture of this more or less candid type, I invariably ask the model to take the position I desire and first of all, just hold that position. All of the lighting must be taken care of at this time.

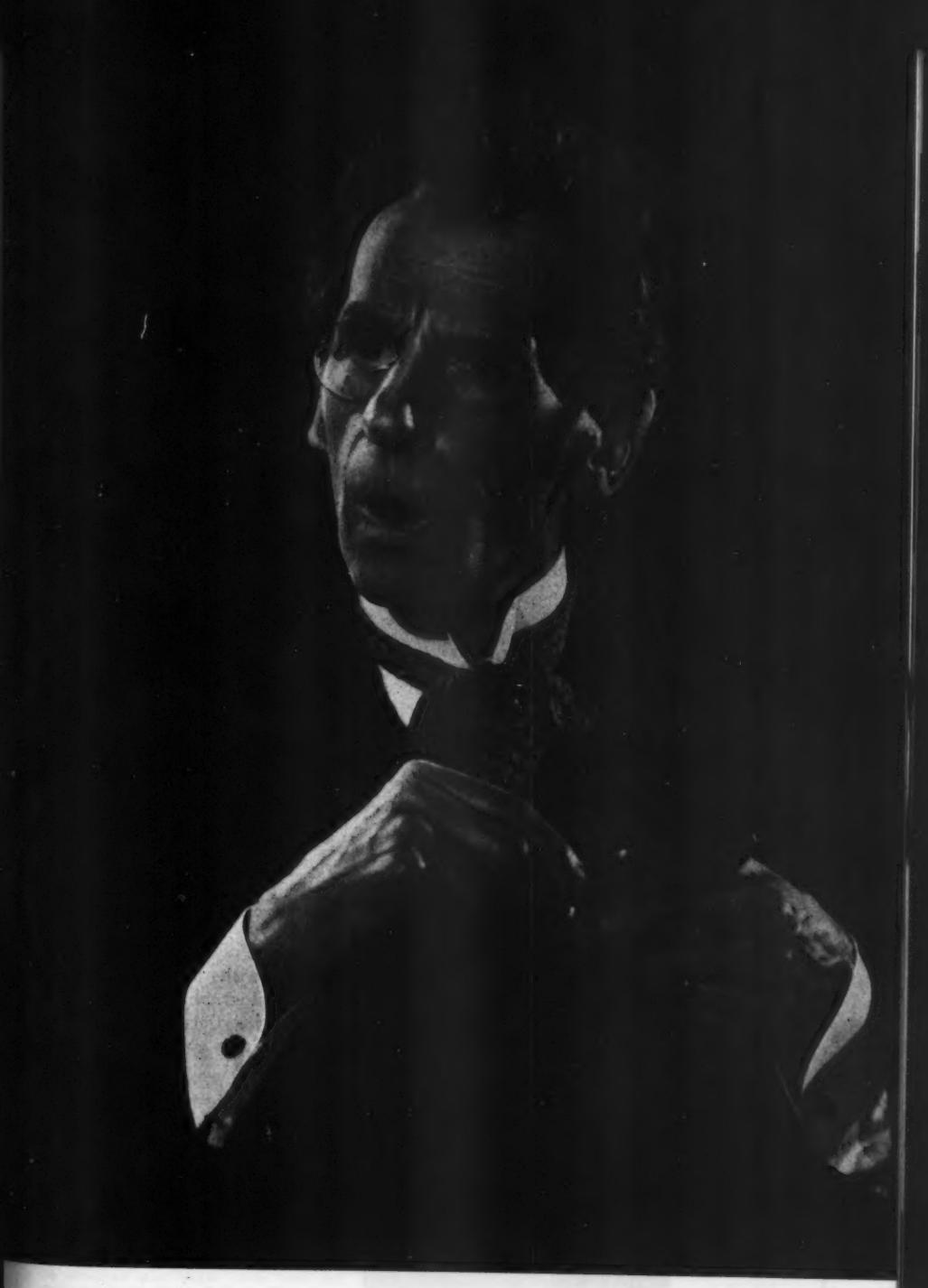
Facial expressions are fleeting things. When you are looking for expression, forget the technical side of photography. Decide upon just what expression or idea you want to get in the finished picture before you turn on the Mazdas.

Perhaps you may get an occasional good

Fig. 3. "Caught in the Act," (see next page). Defender XF pan, film 1/8th second at f/6.

Figs. 4 and 5. John Hutchins at work photographing St. Clair Bayfield in "Caught in the Act." Snapshots by Charlotte Becker. Rolleiflex camera, Agfa Superpan Press film, exposure f/8 at 1/25th second.





"Caught in the Act"

shot by the "just sit down" and "we'll try a few shots" method. However, all of my exhibition portraits were conceived and thought out in advance.

Another thing, if you study the anatomical construction of your subjects, you will know just how to light them in advance. Don't trust to the lucky shot.

Fig. 8 is the portrait of a young man whose brightness of personality is emphasized by the slight twinkle in his eyes and the up-turning of the corners of the mouth.

I had decided *before* I took this picture to be sure and try to capture these decided attributes of his personality. This sparkle was obvious in many of his natural mannerisms. Also there was a charming ease and abandon to the way in which he used his hands and body.

First of all, he sat down and assumed the position of the pose in Fig. 8. I noticed that his pants leg was pulled up a little bit too high. However, this obvious flaw in *perfect posing* seemed to add to the natural boyishness of a charmingly unaffected personality. I decided to leave it as it was.

During the time I was lighting the subject, I asked him to keep his eyes closed. While he was sitting there with his eyes closed, I described to him an amusing scene from a motion picture in which the hero finally makes the var-





sity football squad. I told my subject to look up toward the imaginary coach of the team and repeat mentally the line, "Coach, do you really mean I'm to play with the varsity?"

Perhaps you may not find *this* expression in his eyes. You may see or imagine some other thought. I really do not care—because—I know you will find some expression and it is arrestingly interesting.

There are, undoubtedly, a few people in this world whose eyes and faces express, photographically, thoughts and ideas which they themselves do not really feel. This is true of two or three motion picture stars who have studied acting with me. They possess a peculiar innate quality in their faces which almost invariably registers interestingly. These subjects, however, are the rare exceptions.

Naturally, a keen imagination is an extremely valuable asset for any one who wishes to develop picture personality.

In a recent issue of MINICAM, we discussed the great importance of learning to study and recognize picture personality. Too many portrait photographers are completely incapable of really knowing *when* they see an interesting expression in the eyes.

If you are taking pictures of some member of your family or of friends or relatives, you should decide in advance just what attractive characteristic of their personality you wish to emphasize in your finished photograph. It may be a slight turn of the head accompanied by a quizzical lifting of the eyes.

Fig. 6. (Upper) "Et Benedic." This picture may suggest reflection and meditation to a great many people, but it has never conveyed enough to Hutchins to warrant its being exhibited. The arrangement of the objects in the picture and the emphasis of lighting are quite interesting, but somewhat static.

Fig. 7. (Left) Another one of the pictures that just didn't click. Good ideas frequently go wrong with even the most careful workers. Lack of expression in the eyes results when the photographer fails to inspire the subject at the right moment. Nor is the model to blame. This same subject posed for "The Dauphin," a print which so far has been accepted in every salon in which it was entered.

Fig. 8. Even more ones, do photograph them. This has been despite modelling texture of subject in Defender

Fig. 8. Youthful subjects, even more than mature ones, demand that the photographer play up to them. Without expression, this picture would have been a dud, even despite the beautiful modelling, roundness and texture of the head. The subject is Billy Calahan. Defender XF pan, $\frac{1}{6}$ second at f/11.



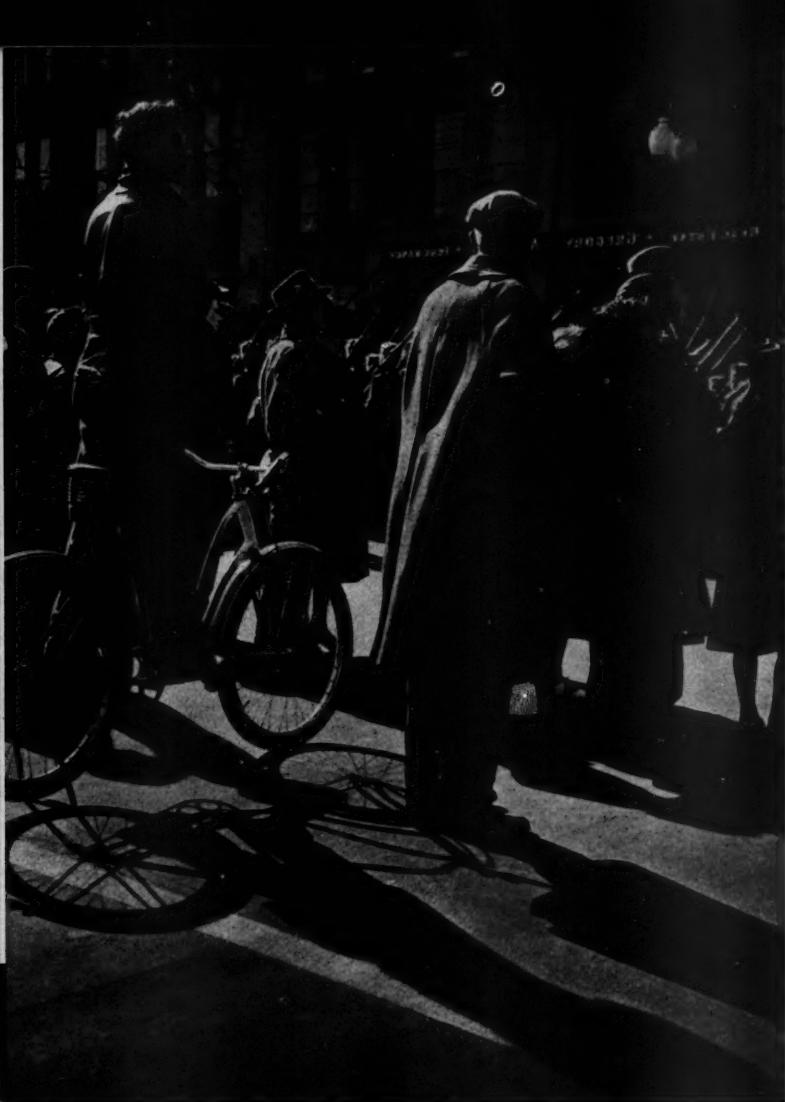
Perhaps in the case of an elderly gentleman, it is a quiet dignity and charm which you have remarked after dinner while he is smoking his cigar.

Certain individuals are really at their best when they are in a serious mood—and reflectively trying to solve a certain problem. All of these many moods are the personal mannerisms which go to make up the personality of that individual as his friends know him. Those particular mannerisms which are repeated *most frequently* will be immediately recognized by his associates. Try and capture one of these characteristic mannerisms or expressions. His friends will say, "Boy, oh, boy! That certainly is George—all right!"

Don't forget that whichever expression you attempt to get, should be an arrestingly interesting one and preferably a pleasant expression.

Sometimes it may be your ill fortune to be called upon to record for posterity on sensitized material the features of a "dyed in the wool", unmitigated stinker. During a preliminary talk with this individual, you may have been unable to discover anything more than a morose, stolid, and totally uninteresting personality.

Try and get him to talk about himself. Sometimes, some of these unpleasant birds who possess the broken down facial conformation of a London cabby will light up and exhibit a great deal of charm when they get to (Page 91, please)



I. "I love a parade" says the song, but the reaction of Americans to marching soldiers is not the same as abroad, and this picture proves it. Exposure 1/100th at f8. Note that the negative was reversed in printing so that the grocery sign in the background appears backward. By Otto Hagel.

How to take KEY pictures

By ALEXANDER KING
Editorial Associate LIFE Magazine

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**Single-picture stories are in demand.
To meet this challenge, see the
contest announced on next page**

IT IS one of the happy attributes of photo magazines that they can devote considerable space to the telling of one story. Reportage under these circumstances allows a photographer a good deal of leeway in presenting his findings. Unfortunately, most other outlets for pictures have to offer a concentrate which gives the gist of any subject in a single photograph. This is perhaps the chief reason for the generally low level of news photography.

But let us admit that even in the leisurely presentation of the picture magazines the whole story often hinges upon one or two telling photographs. A discerning cameraman understands this while he is doing his job and tries to find a single picture-synthesis which will be the key to his story. I offer a few examples which successfully demonstrate my point.

Our picture No. 1 is a more honest record of public reaction to an armed parade in America than 10,000 misinforming and biased editorials.

Hollywood undoubtedly is the gossip capital of America. Its ruling divinities are rumor and hearsay. Picture No. 2 was taken on Wilshire Blvd., and although these ladies may only be exchanging different opinions on the subject of cookery, their stance and curious rakishness somehow symbolize the fingering of good repute.

Let us take photograph No. 3, which was taken in a large city during an American Legion Convention. Wherever these middle-aged roisterers congregate, money circulates freely. In bibulous quest for their youth and forgotten glories, they attempt to wrench from the parsimonious hands of Time some glimmer of youthful carelessness and abandon. Endless are the pic-



2. (Top left) Two idle housewives gossiping on Wilshire Boulevard suggest Hollywood, and the "fingering of good repute."

3. "Welcome Legionnaires" says the window banner under the pawnshop sign to symbolize a celebration and its payoff.

4. Buyers, in their calling, examine at close hand the wearable merchandise of the coming season and the personable demonstrators of these goods.

tures of their amusing cavortings and parades, their amiable paunchiness, but only the picture I submit presents the hard reality of a final pay-off, the soberness of a morning headache and depleted pockets.

The country's buyers, like the country's traveling salesmen, enjoy perhaps undeservedly the reputation of free libidinous indulgence. Undoubtedly most of them are respectably attached to someone somewhere, but in the public mind, and in the folklore of all urban peoples, the buyer and the salesman is notoriously a devilish fellow. Nor is this entirely unreasonable. It is in the nature of his calling to examine at close hand the wearable merchandise of the coming season and he thereby automatically has easy access to the personable demonstrators of these goods.

Photograph No. 4 gives an amusing example of the hard life of the buyer, and explains perhaps the unfounded, envious little tattle to which these worthy, hard-working people are subjected. But why weary you with the obvious. Picture No. 6 is a better panorama of poverty than if it were crowded with the victims of this social condition. Picture No. 7 is an index

to a meeting.

Fig. 8 reveals one of Father Divine's followers hopefully sailing toward her imaginary heaven while her little daughter, unsustained by garbled metaphysics, rests her tired head in her mother's lap. Look at this picture carefully—it is a social document of first magnitude. Bravely accoutré in her best finery, her vague, stray wandering lines have halted for a moment like puzzled dogs along a deserted street. Roused by the cameraman from her hypnotic millennial vision, she seems full of earthly misgivings on her voyage to Paradise.

In back of her, you sense the badly rewarded years, the back-breaking labor, the terror of each tomorrow; and from a lifetime of toil she has garnered a flower for her hat, a ring for her finger, a bewildered stare and her faith. No amount of further photography could better explain or justify the extraordinary potency of Father Divine's leadership among the masses of Harlem. Great and symbolic is the sleeping child, who is bound to awaken to a future not dissimilar to her mother's past.

If it is impossible to deduce as much as

5. (Left) The camera captures the resemblance between the old sea-cook in Snug Harbor, and the squirrel that is his affectionate pet. By Otto Lindemann.

6. A "Poverty Panorama" is this characteristic scene, including tent and sewing machine.

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7. "Index to a meeting" is the coat rack above. From these worn garments, a novelist could deduce the lives of the people and the contents of their meeting.



8. (Right) A follower of Father Divine sails hopefully towards her imaginary heaven while her little daughter, unsustained by metaphysics, rests her tired head in her mother's lap. A social document of the first magnitude.

I have from a photograph then it definitely fails in its qualification as a key picture. I make this stipulation in connection with the list of problems given here

to be solved by means of *one* photograph. The test of your ability will lie in how much of a story you can capture in one picture.

CONTEST ANNOUNCEMENT

\$200 IN CASH FOR KEY PICTURES ILLUSTRATING ANY OF THE FOLLOWING TITLES:

1) Success	7) The joy of children
2) Nervousness	8) The discomforts of modern living
3) Hope	9) Club women
4) Traffic	10) Busy bodies
5) The pleasure of country life	11) The struggle for beauty
6) Entertainment	12) Newlyweds

For the best Key pictures submitted in this contest MINICAM Magazine will make the following awards:

**Prizes: \$100 first prize; \$25 second prize; \$15 third prize;
plus twelve prizes of \$5 each for each print selected.**

CONTEST RULES

1. Anyone may participate in this contest and as many prints as desired may be submitted.
2. Each print must illustrate one of the subjects listed above. The test is how much of a story is told in one picture.
3. Title each print with one of the twelve titles given and tell in a hundred words or less what the print means to you. Also list technical date, camera, film, exposure, etc., used. This information should be written on the back of each print or pasted to it on a separate sheet of paper.
4. Photographs should be 4x5 inches in size or larger. Print on a smooth surface such as glossy or semi-matte.
5. Prints should preferably be UNmounted.
6. Write your name and address on the back of each print.
7. The judges will be appointed by MINICAM and their decision will be final. Every effort will be made to insure the safety of all entries, but MINICAM will not be responsible for material submitted.
8. Enclose a stamped, self-addressed envelope if return of prints is desired.
9. If prints have been reproduced in any other magazine, state publication and date.
10. Closing date: April 1, 1940.
11. Address all entries to Key Picture Contest, MINICAM Magazine, 22 East 12th Street, Cincinnati, Ohio.

WHAT

is COLOR?

By H. CROWELL PEPPER

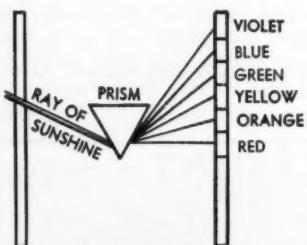
AN authority on color once remarked: "Color is Life." Whether we agree with this statement or not, there are few who would exchange the present colorful world for one in which all objects appeared to the eye as varying tones of gray. From earliest childhood we are affected by color. Scientists tell us that animals, birds and insects are likewise influenced by it. So highly developed is the sense of color in some people that they can conceive color in black and white prints. At exhibitions one may hear comments that certain etchings are "full of color." Of course no color was present but the values were so correct that the viewer's mind unconsciously supplied the color.

Color photography is not new. Since the earliest days of photography physicists and chemists have devoted their time and efforts toward the perfection of methods for the production of photographs in color. It has been more than thirty years since I made my first color prints by the three-color carbon process and by gum printing.

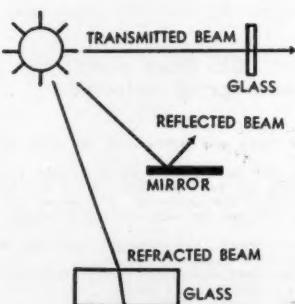
The Science of Color. There are two ways in which colors affect human beings: physiological and psychological. The first has to do with our ability to see color and the second the effect the colors have upon us.

What is Color? Color is purely an internal sensation, and has no external or objective existence. When certain light waves affect the cones or rods of the optic nerve within our eyes they are translated by the brain into color. Our brain designates these sensations by certain word-names as red, blue, yellow, green, orange, and violet. The wave length determines the color sensation. Without light there would be neither color nor visible objects. Everything we see is visible because it is luminous or illuminated.

The sun is a luminous body emitting rays of light. A ray of sunlight, though generally spoken of as white, is comprised of a series of vibrations of varying wave lengths, each of which is capable of creating a different color sensation. By means of a glass prism we may readily demonstrate this fact, breaking the ray of sunlight into a series of colors, which we term the *solar spectrum*. Broadly speaking, the solar spectrum can be divided as follows: wave lengths of 350-500 millimicrons constitute the blue-violet region; 500-600 millimicrons, the green; and 600-700, the red. The *millimicron* is the scientist's meas-



1. A ray of sunlight can be split up by a prism into six colors of the rainbow, red, orange, yellow, green, blue and violet.



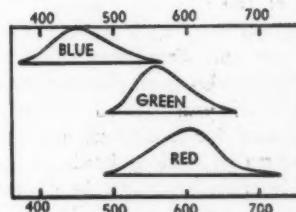
2. Light may be transmitted, reflected, or refracted.

5. Light
are rad
waves.
spectrum
visible
enlarge
tions of

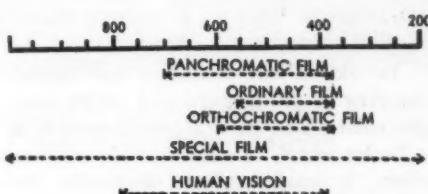
For better color pictures learn the fundamentals of color values, intensities, and harmonies. The first of a new series on the science of color.

ure of wave lengths. When light of a particular wave length reaches the optic nerves the brain translates the sensation into the corresponding color. This is the physiological side of color.

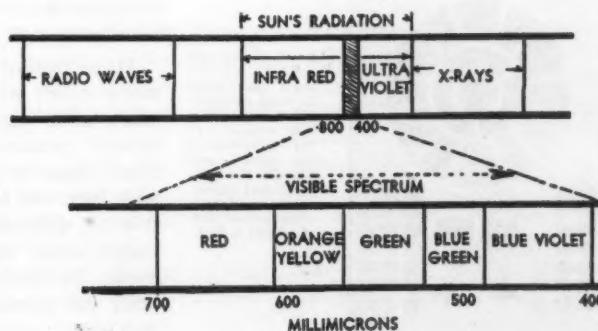
Why do objects appear of different colors? Photographically we are interested in reflected light, i.e., the light reflected by the objects before our cameras, which is focused upon our light-sensitive medium — the photographic emulsion. Light can be absorbed, transmitted, refracted, or reflected. Most objects possess the power of absorption and of reflection. When a ray of light strikes an object only a percentage of it is reflected while the balance is absorbed. The rays which are reflected determine its color. To illustrate: We have learned to consider the leaves of trees in summer as green in color. They affect us as green because they reflect more of the vibrations lying within the spectrum at wave lengths approximating 550 millimicrons. Fortunately, other wave lengths are reflected to a lesser degree and we thus secure a



3. If light has a wavelength of 400-500 millimicrons it appears blue; 500-600, it is green; and from about 600-700 it is red. If all wave lengths are present the light is yellow.



4. Color sensitivity of various films compared with the sensitivity of the human eye. Note that panchromatic film most nearly approximates the eye, while special films such as infra-red can be made sensitive to more than the eye can perceive.



5. Light is a vibration as are radio, x-ray and sound waves. The electromagnetic spectrum (upper) with the visible spectrum (lower) enlarged to show the positions of the various colors.

variety of coloring or color sensations. If the power of absorption and the power of reflection are such as to increase or decrease the wave length from what is termed spectrum green we secure yellow green or blue green.

Daylight is not constant and at different times of the day the same object presents different color sensations to our eyes. This is of the greatest importance to photographers working in color. This variation is not only dependent upon the time of day but also upon climatic conditions and time of year. Lord Kelvin devised a method for measuring the difference in spectra of various kinds of light. These differences are rated in degrees of color temperature with a "K" after them. Sunlight has a difference or range in color temperature of from 4900° K to 6500° K; the ordinary house lighting has a temperature of approximately 2800° K. These differences in color temperature when not compensated for lead to many a failure in color photography.

To aid in our discussion and understanding of the properties of colors study the color chart, page 2, which consists of a "color wheel," a value and an intensity chart, a smaller chart illustrating the effect of a white, a gray, and a black background upon the primary and secondary colors, and two small figures illustrating the psychological effect of colors.

Yellow is the brightest of colors and in the color wheel is located at the top. Midway between yellow and blue is green, a

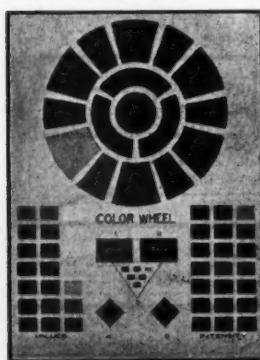
secondary color. To the right of yellow we find orange, another secondary. The darkest color (violet) is the third secondary lying midway between red and blue. If this chart were viewed under a sodium light and the colors rendered as grays, we would find a series of gray tones in which the yellow would be almost white, the intermediate yellow-orange and yellow-green slightly darker but of the same relative value, and so on down each side of the wheel, with the violet the deepest shade.

Within the outer color-circle we find the tertiary colors made from mixtures of pairs of secondary colors. Next we find a gray made from a mixture of white and black and in the center black.

In the lower left-hand portion is a *value* chart. In the left-hand and middle columns are placed green and orange in their full intensities in their proper positions as shown on the color wheel, while in the third column violet, the darkest color, is likewise properly placed. Green and orange to be reduced to the value of the violet require the addition of black; to bring violet up to the color intensity of green and orange it is necessary to add white. The lower right-hand section of the chart gives a fairly accurate picture of color intensity.

Every reader should prepare a similar chart and photograph it under varying light conditions. From this much can be learned of the limitations of the particular color medium being used, how the colors are affected by lights of different color temperatures, and a world of information about exposure.

When dealing solely with light, the primary colors are blue, green, and red; when using pigments or dyes, the colors termed primaries are red, yellow, and blue. Since in photography we deal first with light and later with pigments or dyes it is not difficult to see the confusion that might arise unless this explanation is made. In the following discussion I shall treat the primary colors as red, yellow, and blue.



6. A photograph of the color chart (see page 2) made on color blind film. Note that violet (at the bottom of the wheel) and blue (to the left), both dark colors, appear light while yellow (top of wheel) is dark.



7. The blue of the sea, the light blue of the sky, and the deep blue of distant objects make this subject a MONOCHROMATIC harmony. Leica camera, Finopan film, f4.5, 1/200th second. "The Following Wave," by Richard A. Heald from Fifth Rochester International Salon.

We often hear the expression *complementary colors*. A glance at the color wheel will show opposite each color its complementary. Blue is the complement of orange, red-violet of yellow-green, etc. Take the first illustration, blue and orange. Orange is made by mixing the primaries, yellow and red, and the third primary is blue; therefore blue is the complement of orange. Likewise violet, a secondary color mixed from the primaries, red and blue, is the complement of the third primary, yellow.

All colors possess certain properties. We speak of color *hues*. In a broad sense the term hue designates the color, so, where the dominating note is red the colored object is said to have a red hue. Many artists, however, apply the word to variations in the secondary colors, thus if green

is varied from the spectrum green toward the yellow giving a yellow-green or toward the blue giving a blue-green, the *hue* is termed yellowish or bluish. In a good color composition the raw colors in their full intensities are seldom used, since the results are too crude. We usually use the hues in different *values* and *intensities*. The color temperature of the light used to illuminate the subject will affect all its colors. Thus if the light is yellow (2800°K) every color in the composition will be affected by this yellow light and their true hues changed.

We shall note as we progress that color *values* play an important part in our results. Values refer to the lightness or darkness of colors. Refer to the color wheel and the chart of color values, page 2. Note that (Page 96, please)

New

DEVELOPER MIXING METHOD

Increases Keeping Qualities

TO avoid the annoyance and expense of having developer turn brown in the bottle, with the attendant dangers of stained prints or negatives if this darkened developer is used, a new mixing procedure has been worked out by Richard W. St. Clair, A.R.P.S. A partly-filled bottle of developer, mixed by this procedure in the spring, was left exposed to light in a college laboratory throughout the summer during which temperatures in the unoccupied room probably passed 100° F. and the developer was still clear and usable when the college opened in the fall. This mixing procedure requires more care, but amply repays the workers who use it by making it unnecessary to always keep the developer bottle filled to the cork by inserting glass marbles when part of the developer is withdrawn.

Two things are important in this procedure: (1) the carbonate must be kept away from the other ingredients as long as possible; (2) all utensils used must be clean.

In mixing the developer, the sulphite is dissolved in hot water (125° F.). Then the specified amount of elon is dissolved in hot water (125° F.). As soon as it is dissolved it is filtered into a clean bottle. The sulphite solution is then poured through the same filter into the elon solution. Sufficient hot water must be used in dissolving the sulphite to more than completely dissolve it, because if a strong elon solution is mixed with a strong sulphite solution the elon may be precipitated. Filtering should proceed as rapidly as pos-

sible. In the last few ounces of the sulphite solution the hydroquinone is dissolved and the filtration continued. The bromide may be added at any time. The bottle containing the elon, sulphite, hydroquinone, and bromide solution (if it has been added at this point) should now be shaken so that the chemicals are mixed vigorously.

At this point in our procedure we have in the bottle two developing agents (elon and hydroquinone) and a preservative (sulphite). Due to the fact that developers have a great affinity for oxygen, and we do not want them to oxidize because the result of such oxidation is a darkening of the solution and staining of negatives or prints, we have quickly added the sulphite solution to prevent this. Reviewing: By filtering the sulphite solution into the elon solution as rapidly as possible the elon is prevented from oxidizing, and by adding the hydroquinone to a fairly strong sulphite solution the hydroquinone is kept from oxidizing. The developer mixture should be clear.

Our developer at this point is incomplete, needing the addition of the carbonate as an energizer, or accelerator. After the above four ingredients are completely dissolved and filtered the filter-paper used is thrown away and all glassware must be scrubbed thoroughly, to leave no trace of the previously mixed chemicals. Next the carbonate is dissolved in a separate container and then filtered into another container. Finally the filtered solution of

(Page 92, please)



The secret of success lies
in preventing oxidation
during the mixing process

By DAWSON POWELL

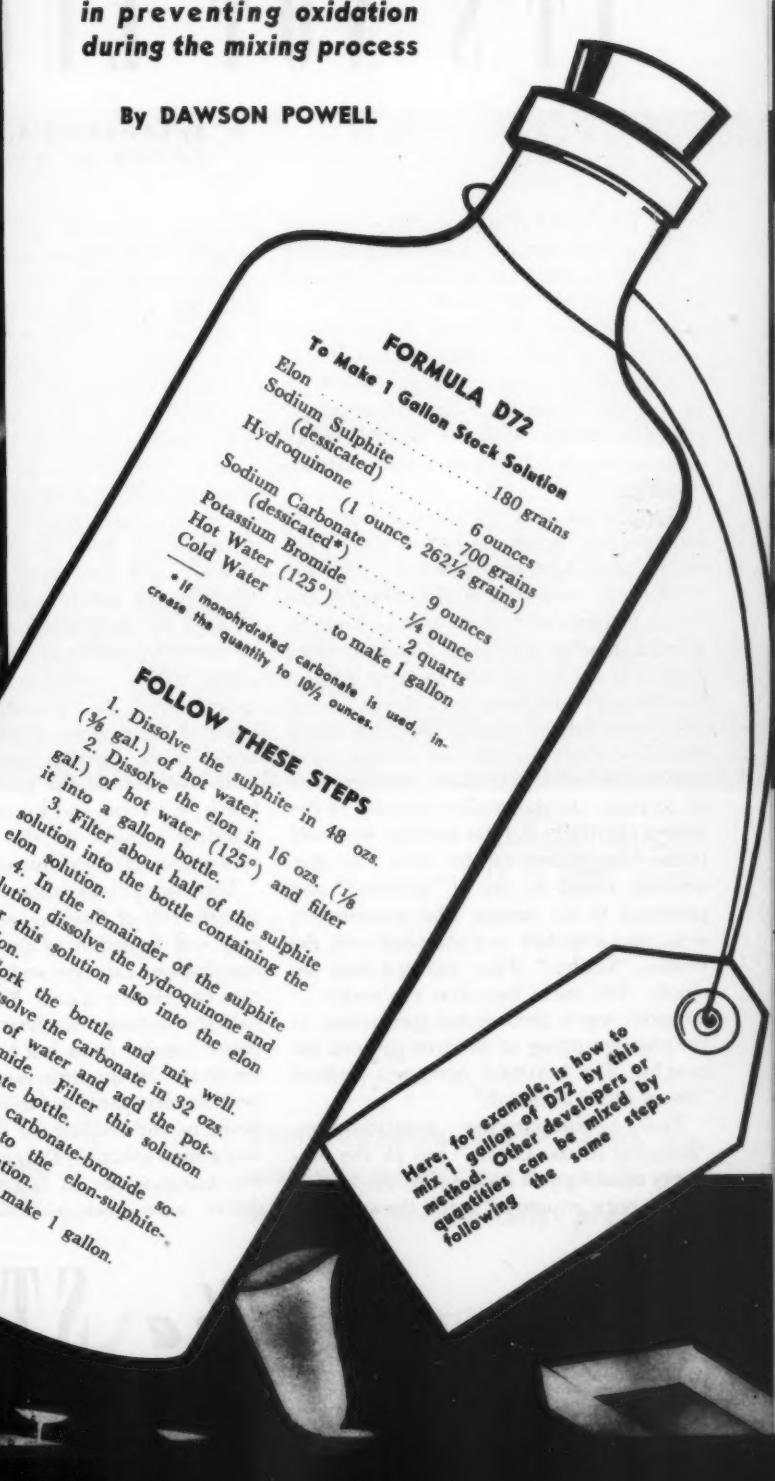
FORMULA D72
To Make 1 Gallon Stock Solution

Elon	180 grains
Sodium Sulphite (dessicated)	6 ounces
Hydroquinone	700 grains
Sodium Carbonate (dessicated*)	(1 ounce, 262½ grains)
Potassium Bromide	9 ounces
Hot Water (125°)	¼ ounce
Cold Water	2 quarts

*If monohydrated carbonate is used, increase the quantity to 10½ ounces.

FOLLOW THESE STEPS

1. Dissolve the sulphite in 48 ozs. (¾ gal.) of hot water.
2. Dissolve the elon in 16 ozs. (½ gal.) of hot water (125°) and filter it into a gallon bottle containing the elon solution.
3. Filter about half of the sulphite solution into the remainder of the sulphite elon solution.
4. In the remainder of the sulphite elon solution also into the elon solution this solution also into the elon solution.
5. Cork the bottle and mix well.
6. Dissolve the carbonate in 32 ozs. (¼ gal.) of water and add the potassium bromide. Filter this solution into a separate carbonate-bromide solution rapidly to the elon-sulphite-hydroquinone solution.
7. Add water to make 1 gallon.
8. Add water to make 1 gallon.



Here, for example, is how to mix 1 gallon of D72 by this method. Other developers or quantities can be mixed by the same steps.

"IT'S NOT LUCK"

By LAWRENCE A. MONAHAN
Staff Photographer on COLLIER'S Magazine

ATTENDING a salon, have you ever paused before a striking print full of drama that held your attention only to feel the hot breath on your neck of a self-appointed critic bellowing in your ear: "Most fortunate shot—that?" Whether your blood pressure mounts in resentment depends on your personal experience. Why is every dramatic shot with a suggestion of movement labeled "accident"?

Such expressions often sway the decisions of salon judges, just as the booing of spectators can give pause to a referee or umpire rendering a decision. A national pictorial organization once hung in its annual salon a print of a baby peering with one eye at the camera a la peek-a-boo through a teething ring. It was one of those prints that "wowed" even the hardest-boiled spectator. It had appeal, print quality and all those other attributes that go to make up the perfect picture, so the judges rightfully did not hesitate to award it the blue ribbon of the show. At this, someone raised the cry of "accident" and protested to the judges, who immediately went into a huddle and returned with the verdict, "Guilty." They reversed their decision. The mere fact that the maker of the print was a professional specializing in the photographing of children counted for naught. The beautiful print was dubbed "just a lucky accident."

The accompanying reproduction, "Bringing in the Catch," has all the earmarks of being just such a shot. As long as I have been requested to tell the story be-

hind the picture, I feel the prologue necessary. The print as reproduced is an unadulterated glossy, made purely for reproduction—it lacks a gorgeous sky, projection control, compression of scale and local handwork, so whatever story there is must be about the shot itself.

About a year ago, while convalescing after an attack of the Flu, a friend suggested a trip to the shore to get the carbon-monoxide out of my lungs and a bit of sun on my blanched features. He had made some shots in the vicinity and thought it a good plan to look over the territory for future excursions. Needless to say, we took along our cameras, together with plenty of eats, and soon had things nicely spread out in a sheltered spot behind the seawall, when a two-wheeled contrivance drawn by a team of horses came through an opening in the wall and headed for the water. On the beach, it circled and stopped. The driver, standing upright on the rig, shaded his eyes and carefully scanned the horizon.

Something was about to pop. With mouths full of food we grabbed our cameras and legged it to the spot, the while opening our cameras and setting the aperture and shutter speed. Before we covered half the distance, we heard the purr of a motor coming from just behind the breakwater and by the time we had covered the next twenty yards a fishing boat was opposite us and circling for the shore. There was a mad scramble for position. The surf was bringing her in fast. The team and driver were positioned on the ground-

The STORY



"Bringing in the Catch."
Graflex, series D camera.
Agfa Superpan Press film de-
veloped in Agfa 15. Shot
at f16, 1/160th second.

This lensman knew what he wanted and was not averse to going back for it fully prepared

Behind the Picture

glass and the spot where the boat would hit the beach approximated. When she hit the desired spot, I gave her the gun, and before I could pull out the filmpack tab she hit the beach.

Additional shots were made as she was hauled out beyond high water by the team, but all day I had a cozy (but false!) feeling that the first shot was the one worth while. The actual time, from her first appearance around the breakwater to landing, could not have been more than a minute, and another five found her snug as a bug high on the sand, so you see there was not much time for planning. Though my first shot was deliberate and the action timed, it was not 100%. What is more, I had been a bit rough in tearing off the filmpack tabs. A good part of the negative was light struck. I made an 11x14-inch print, burning in as best I could the fogged areas. For days after, I would stare at the print and curse my luck.



The first shot, above, was a failure.



By the time this exposure was made, the action had slowed down. The crew is seen merely holding the boat from the undertow while the gear is made fast. Both of these exposures were fogged, so the photographer returned for a "retake" the result of which can be seen on the previous page.

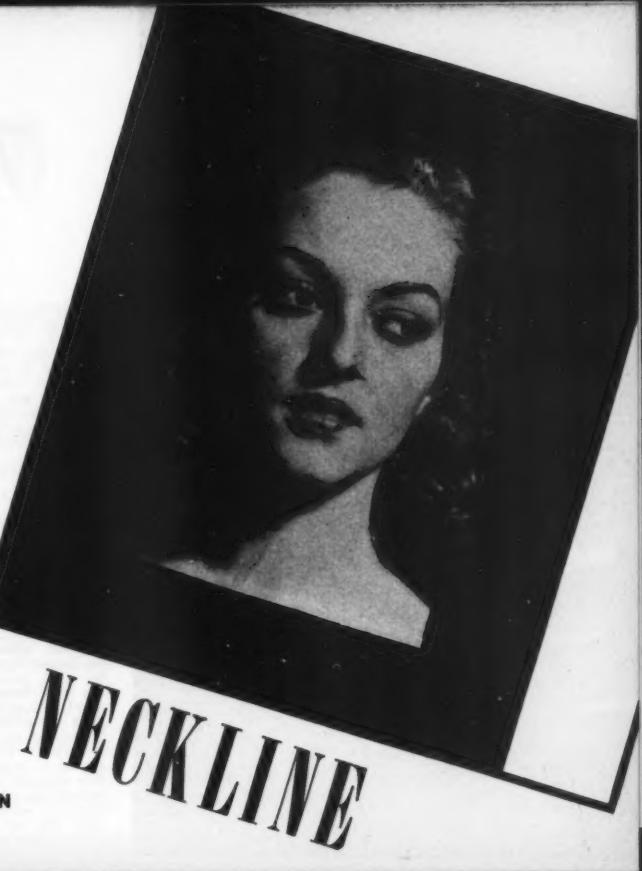
I remembered clearly those hectic seconds on the beach when time was so precious, and decided to go again to the same spot. This time, I would be prepared. On a late spring day, off we went to the seaside. The day was cloudless, and the light was good. We saw the horses standing in the same position I had shot them. A new driver was leisurely leaning against the rig smoking a cigarette.

Eager questions brought forth the information that there would be no boat for another three or four hours as one had been hauled out about a half hour before our arrival. Disconsolately we made our way back to the car, when we heard the familiar purr of a motor. Back we scrambled, jockeying for positions, when suddenly a boat appeared from behind the breakwater as before. A quick glance at the groundglass told me I needed a foreground, so I backed off a yard or so to make use of some ruts in the sand. I positioned the horses and watched the boat approach in a wide arc. The driver had picked up a block through which the rope was reaved and advanced toward the spot the boat was to beach. Each step he took widened the gap between him and the horses, so I had to move slowly in the opposite direction to keep the spacing within reason. Meanwhile the boat was coming in swiftly. With one eye on the boat and the other on the man and horses, I waited for the boat to hit the selected spot. Just as an oncoming wave spanked her, I pressed the shutter release. At the same moment, the driver moved his head across the after part of the boat. I did not know this at the time as I was watching the boat, not the man. There is a nice highlight on his cap that pulls him out of the tone of the boat, but an eighth of an inch separation on the print would have made me happier.

All in all, I do not feel so badly about missing my first attempt, for the second shot found me prepared and resulted in more action.

One way to learn how to tame "Lady Luck" is to retake a subject that you like until the result is what you want.

WHAT'S in a neckline? The difference between length and breadth, between a good portrait and a mediocre one. If your model has long, thin features, provide a dress with a square neckline to broaden the face. A low V neck should be worn by the model with a broad face, to add length. A circular neckline neither broadens nor lengthens—hence it is ideal for the subject of medium proportions.



Vary the NECKLINE

By HENRY CLAY GIPSON
Illustrated by the Author



S

Take It



"Alligators at 15 seconds."
By Jacob Deschin, A.R.P.S.
The zoo, at first glance,
looked like the proverbial
inside of a coal mine at
midnight. The camera,
however, was not scared
off, saying, "Just give me
enough time, and I don't
care how dim the light is."

Broadcasts are well enough
lighted to come within
snapshot speed only for
the fastest lenses. Taken in
the CBS playhouse show-
ing Al Pearce on the
stand. Contax Camera,
Agfa Ultra Speedfilm, f/1.5,
1/50th second. Developed
in Infinol. With the cam-
era on a tripod or other
firm support, and the sub-
ject standing still, the same
exposure would be obtain-
able with an f/4.5 lens at
1/8th second.

MOST pictures are taken at snapshot speeds, at about 1/50th of a second. With emphasis on freezing action pictures at 1/100th to 1/1000th of a second, we are overlooking many good bets in picture opportunities.

But by using the s-l-o-w-e-r speeds of 1/10th of a second to one second, hitherto unapproachable subjects suddenly become camera fodder. Dark and cloudy days, early morning or late afternoon light holds no terrors for the lensman who has the patience to take a time exposure. As a matter of fact, many pictorial artists, such as Leonard Misonne, hold that early morning, when the mist is still in the air, is the *only* time of day for picture taking.

Clouds, rain, snow and storm, instead of driving the photographer indoors, now bring him rushing out with a camera in one hand and a tripod in the other. And then there are the shots indoors in homes,

offices, and public buildings—all made possible without extra illumination.

A tripod will hold the camera in a perfectly steady position for an indefinite length of time but any solid, non-moving object with a flat surface also can do the job. As a matter of fact, some tripods, because of poor design or construction, are far less secure and steady than many substitutes.

When is a tripod necessary? There are differences of opinion here. Some say that no exposure should be made from the hand at slower than 1/100th of a second; others go to the other extreme and declare that, given a steady hand, it is quite possible to shoot from the hand at 1/5th and even 1/2 of a second. It is assumed, naturally, that the object is not moving. Some workers find even 1/25th too slow to prevent camera shake. As a general rule, 1/50th of a second can be chosen as

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S - L - O - W - E - R

By JACOB DESCHIN, A. R. P. S.

Do they say, "You can't shoot that! There's not enough light!" Here's the answer.

the slowest hand exposure, adjusting the diaphragm opening to suit the available lighting conditions and the particular requirements of the subject. Use a camera support whenever a speed slower than 1/50th is required.

If a tripod is not handy, a substitute may be contrived. A strong table is probably the most rigid tripod substitute you can find. Fig. 6 shows a camera in action near the edge of a table. A window sill may be used, or a stool, or a wall, as seen in Fig. 1. In Fig. 2 a flat surface was provided by placing a box on top of the curved surface and an up-angle achieved

simply by lifting the front with a small film can. In Fig. 1 the camera was held flat against the wall after the subject had been properly sighted and focused. While a cable release is usually associated with time exposures these positions plus the type of shutter release shown assure a steady release by using the camera release itself, particularly in the case of Fig. 1.

Thousands of camera fans pass through Grand Central Terminal, New York City, without realizing its pictorial possibilities simply because the scene is indoors. This was taken at snapshot speed by N. Field with a Rolleiflex, 2 $\frac{1}{4}$ "x2 $\frac{1}{4}$ ", Zeiss Tessar f/3.5, Agfa Superpan Press film developed in Agfa 17. Exposure, by Weston Meter 1/50th at f5.6. Print on Agfa Brevira developed in Agfa 125.



Occasionally, it is desired to make a picture with the camera lens lying parallel to the subject, as in copying. This position, too, can be arranged without the use of a tripod. One solution is shown in Fig. 3, where the top and bottom of the camera body front are supported by corrugated cardboard placed on stools, with the height of the smaller stool equalized by piling up a box and several sheets of the cardboard to achieve a level camera position. In lieu of a table, window sill, chair or similar support, a ladder may be utilized (Fig. 7) with perfect success. A ladder will serve ideally in those cases where a relatively high position is desired and tilting the camera may be accomplished by the several methods shown in Figs. 2, 4, and 9.

The need for a higher vantage point is accomplished on the table or other support merely by using boxes, books or similar aids in raising the camera position (Fig. 5), while a down-tilt or an up-tilt of any degree is achieved simply by supporting the front or the back of the camera in a tilted position. The degree of the tilt can be varied by using boxes, wood or other supports of the required height. Thus, Fig. 2 shows the camera in position for a moderate tilt, while Fig. 4 shows the use of a wood block to provide an extreme up-tilt of the camera.

Various tripod substitutes are also available commercially. One such device is the Trigger Tripod, shown in action in Fig. 8. This was designed chiefly for the convenience of being able to operate the camera shutter with one hand, although it also serves for a steady camera support. So-called "chest tripods" equipped with a strap attached to one end of a unipod are found effective by many. The strap is suspended from the neck and the unipod braced against the chest. In this position the camera may be held reasonably steady for short time exposures up to possibly a full second, depending on the individual. Another device, useful both indoors and outdoors and particularly for nature work, is the Optipod, which can be attached to the back of a chair or, outdoors, to a tree branch, and swiveled about until a desired angle is achieved.

The general principles employed in tripod substitution



2



2

1. Camera held flat against a wall.
2. A box and film can on a concave surface.
3. An arrangement for vertical copying.
4. Wood block used for extreme up-tilt.

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indoors may also be employed outdoors, where a flat rock, a stone wall, the back of a park bench may all be used effectively. Resting the camera on one knee or holding it flush against the wall of a house are other methods. In the theater, you may achieve camera steadiness for those shots requiring 1/5th or 1/10th exposures by bolstering the arms against the body while steadyng your back against the seat.

Still lifes and table-tops require a camera support not alone for the time exposure that is usually called for, but also because of the care required to compose such subjects. Besides, it is frequently necessary to employ a so-called supplementary close-up lens, the use of which necessitates exact measuring between camera and subject.

Pictures outdoors at night may sometimes be made snapshot-wise at 1/25th or 1/50th of a second, but most of them will probably have to be tripod (or substitute) exposures.

Dark interiors are usually give up for lost or a snapshot is made with a blank result. "Alligators at 15 Seconds" might have been passed by but for a time exposure. It was accomplished within 15 seconds at f8 by steadyng the Rolleiflex on a stone railing and tilting the camera downward by tucking the front of the everready case under the camera.

Dark days, early morning shots often call for time exposures, The formal portrait, especially when a long focus or telephoto lens is employed, frequently calls for a short time exposure of 1/5th or $\frac{1}{2}$ second. Color shots require full definition throughout and because of this as well as the fact that color films are relatively slow, time exposures are often necessary. Stereo pictures, for reasons of full definition from nearest to farthest planes, need a steady support where a deep field is to be covered. A tripod or other support is also required in copying; in instances where it is necessary to make a series of shots of a subject which must include exactly the same area in each picture; in "open-and-shut" flash work; and in other fields.

5. Boxes or books to raise the camera.
6. In action near the edge of a table.
7. A ladder may be utilized.
8. The trigger tripod.
9. Wood block used for tilting.
10. Camera on a window sill.





GUNNING FOR PICTURES *behind*

BOMBS from the air . . . shells from the German guns that ringed Warsaw in a circle of steel . . . homes, apartments, stores blasted by explosions . . . cries of the wounded, the dying . . . shrieks of terrified women and children . . . night skies lighted by dozens of incendiary fires . . . stoical resolution . . .

soldiers returning home at intervals with their rations to feed starving wives and children . . . refugees huddled in the cellar of the American Embassy, awakened by shells exploding . . . these are some of the memories that haunt Julian Bryan, ace American cameraman and lecturer, who left Warsaw only a week



1. Polish refugees encamped outside the Warsaw opera house which housed 503 refugees. Note shrapnel-scarred walls. (Previous page, upper left.)

2. Ruins of bombed church in Warsaw. Only the crosses remain intact. (Upper right.)

3. Refugees camping out-of-doors with salvaged household goods. (Lower left.)

4. Damage done by exploding shell to Eastman Kodak laboratory in heart of Warsaw.

5. All of war's sorrows are revealed in this remarkable study of a Warsaw woman sitting by her window which had been shattered by a bomb concussion—and still continuing to pray and hope for peace amid the horrors of war.

6. (Below) Julien Bryan in action with one of his cameras, a 35 mm. Bell & Howell Eyeo, during the siege of Warsaw. From a precarious rooftop perch, he shot the flight of Nazi war squadrons.

the lines

by

A. J. EZICKSON

Telephone Editor, Times-Wide World

PHOTOGRAPHS © JULIAN BRYAN



before the city's final capitulation.

Bryan brought back to New York five hundred still pictures, the only uncensored, exclusive photographs of the Polish capital made during the height of its siege, from September 7 to September 21. The story of the cameraman who of his own volition left the safety of Rumania to plunge into the cataclysmic depths of war-torn Poland, who dared enter its capital when every foreign reporter and photographer had already fled to less-exposed places, who remained while the shelling and bombing grew daily in volume and ferocity and recorded the scenes of death and destruction with his camera, is an adventure worthy of the spirit of a Galahad, a Livingstone, or a Peary. He escaped without a scratch, and, what is more miraculous, with a picture record of the bombing and shelling of a modern city, in which each picture tells a powerful story, reveals a gruelling experience.

For five days after his arrival in Warsaw, Mr. Bryan roamed the city without an official military permit, constantly risking arrest. He had made application for a permit, but officials were busy with other matters. In the early morning of the 12th, an affirmative answer came, but no sooner did the Poles grant permission than an offer came to help him leave the city. Under the circumstances, few men would have waived such an opportunity. Major Colbern, American military attache, had been ordered to Brest Litovsk to help evacuate Americans. The one available place in the car that was leaving the Embassy was offered to Bryan. Should he go? Bryan decided to stay in the besieged city.

Accompanied by a Polish interpreter and an officer, he made the rounds, photographing the life of a people under siege. He used a Leica and a Bell and Howell movie camera. He photographed homes that had been torn to shreds by direct hits, the ruins of large apartment houses appearing as if they had been struck by a giant cleaver, the effect of a bomb with a delayed fuse, exploding only after it had reached a lower floor. He

skirted huge bomb craters to snap rescue workers digging frantically into the ruins for the dead and the injured; he recorded the ruins of factories burnt into masses of twisted girders and machinery; he photographed old men, boys in knickers, girls, and women sweating over pick and shovel digging trenches in the city parks and streets. Then there were the closeups of unforgettable faces, faces that ever turned skyward for the sight of the enemy planes that were coming over in larger and larger numbers, faces imprinted with the marks of terror, drawn faces with sunken cheeks and eyes red and weary with sorrow and lack of sleep . . . Bryan made dozens and dozens of such pictures.

After a heartbreak day Bryan would return to the American Embassy where he had found shelter with dozens of other refugees. He made his bunk with servants in a hole in the cellar, outside the kitchen at the rear of the Embassy. All during the time he stayed there he never removed his clothes. The residents covered the windows with heavy black paper and sandbagged the outside of the building.

As the days wore on, the bombing grew fiercer. The Germans had moved up to the city, and heavy artillery pieces were shelling every section. Food became scarcer. There was little or no water. The mains had burst. Wisely, all the bathtubs and every available tub in the Embassy had been filled to capacity with drinking water, and was rationed sparingly. One night a big shell landed outside the kitchen window which luckily was sandbagged the night before. The concussion was so great that it forced the heavy paper covering on the windows clear across the kitchen. On another occasion a shell hit a tree directly in front of the house. A building not ten yards away was the object of another hit.

On the 16th, Bryan had a miraculous escape from death. Up to that time he had made dozens of pictures. At first he had planned to save all his exposed film and have it processed after leaving Poland, but then he decided to test a half dozen rolls to determine his results thus far. He went by car to the

(Page 89, please)

SELL *the small fry* FIRST

By HOWARD BRISCO

City Editor, Bristow (Okla.) Record

ON all metropolitan newspapers worthy of the name there is a gentleman called the Sunday editor, feature editor, or picture editor. He is the man who can give the budding freelance photographer a boost. It is his job to assemble the Sunday magazine section and to make it as interesting as he possibly can. He'll gladly buy your photographs and feature stories—if they meet his requirements.

No matter whether you live in a metropolis or a tank town, there are feature stories around you that will sell your pictures to state newspapers and perhaps to larger publications elsewhere. But before you can peddle them successfully there are a few things that you absolutely must know.

News is probably the most divergently

defined word in the English language, but for the purposes of this article, consider it merely as synonymous with "unusual." The more unusual the event or fact is, the more news value it has and the more readily will it sell your glossy 8x10 photograph to a newspaper editor or a syndicate. An example of the news story is this one which landed on the front page of practically every newspaper in the United States. The locale was a remote island in the Pacific so heavily infested by rats that the residents were forced to import large numbers of cats to control the situation. For a while everything went along swimmingly with the felines doing their duty in a praiseworthy manner. Then one day, by accident perhaps, the rats learned the magic power of co-operation, and the amazed citizens were treated to the spec-

Short, one-picture newspaper features like these provide easy entry into the fascinating field of photography for publication. Study the feature pages of your metropolitan newspaper for an understanding of what the editor wants.



tacle of a dozen rats chasing a large cat down the main thoroughfare. That was news!

Is there in your community a marbles champion who has no arms, a female cobbler, a cat worth \$250? Probably not, but all three of these sold pictures for me. The marbles champ, a negro boy of 16, shoots the marbles with the toes of his right foot and has won several tournaments. The woman cobbler is supposed to be the only one in the United States, and the big Persian tabby is a double champion show winner.

Maybe you have in your town a high school basketball or football team that hasn't lost a game since the Chicago fire? Okay, that's what the sports editors are looking for. I drove fifteen miles after such a picture one Sunday morning and sold it to a newspaper with a short outline of the team's record. Overlooking no bets, I then sold ten dollars worth of prints to the players, who were glad to have them as souvenirs of a successful season. On the way home I called on a bearded hermit whom I had heard described as an authority on early Oklahoma history. I made several shots of him and expect the story and pictures to grace the pages of a magazine section before long.

You can see that I am steering you away from the big stories, magazine features and the idea of sudden success. Unless you have had considerable writing experience coupled with real photographic skill it is better to start with the small fry. The one-picture Sunday feature is the answer. Your checks—after you learn what is salable—will average from \$2.50 to \$5.00, and you will earn every cent of them, but you will be gaining valuable experience which will be of use when you start shooting at bigger markets.

A great many amateurs battering away at the newspaper's gate fail because they do not analyze their stories. Before submitting illustrated features ask yourself: Will this surprise anyone? Will it give the reader something new to think about? Will it cause him to show it to his wife,

or to mention it to his associates?

Newspaper editors in the active days of Pulitzer and Hearst had a formula that was a sure-fire circulation stimulant. They slanted their editions, and especially the Sunday magazine, to cause the reader to exclaim, "Gee whiz!" That's not a bad formula for the free-lance photographer. If he can make the reader resort to that boyish expletive, he can sell his pictures.

Make your stories brief and to the point, but include all relevant information in simple style. If the editor doesn't like the way your story is written, he can pass it over to a rewrite man who in fifteen minutes will whip into shape the yarn that you have slaved over several hours.

Occasionally you may stumble into something that is worth a full-page spread. In that case, it is generally best to write the Sunday editor a letter explaining the story and the treatment you expect to give it. If the idea clicks, he will probably give you an assignment to cover it. Full-page features are worth searching for, since some of the larger dailies pay as much as \$75 for them.

Study the feature pages of your metropolitan newspaper for an understanding of what the editor is buying. Then look around you for similar material.

If it is possible to tie in a pretty girl with your story, include her photograph. Of the thousands of photographic subjects that parade before the picture editor not one is so apt to catch the eye as a good shot of a personable girl in a bathing suit. The editor of any newspaper, large or small, is a harassed individual whose fervent desire is to make the deadline with an edition that people will read, and he knows from experience that sex appeal will never let him down. So when you shoot the hen that laid four eggs in one day, pose Biddy in the hands of a pretty girl.

In newspaper pictures the emphasis ordinarily is on the story, which means that there must be justification for the shot. Don't pester editors by sending them shots of your dog doing his cute tricks. They may be good (*Page 102, please*)

Follow the figurative evolution of a camera from a makeshift box to a modern miniature

IF you have to make a picture, but own no camera, you can take a discarded but light-tight cigar box or paper carton, put a piece of film in one end, stick a pin-hole in the other and take your picture.

The result will be a recognizable reproduction, although rather fuzzy in appearance. Lack of sharpness will not be the only limitation of our makeshift camera. For one thing, a pinhole admits relatively little light. An exposure of 10 seconds is required even in bright sunlight with one of the fastest films such as Superpan Press or Super XX.

We try enlarging the pinhole. This permits more light to enter, but the sharpness of the image falls off.

The pinhole is replaced with a simple lens. The image cast is brighter than the pinhole image, but still rather fuzzy.

The simplest lens is a positive meniscus, which is a circular piece of glass, having one surface which curves outward (the convex surface) and one which curves inward (the concave surface). The curvature of the convex surface is greater than that of the concave surface, so the lens is thicker at the center than it is at the edges. This makes it a positive or magnifying lens, capable of forming an image of a bright object on a white sheet of paper, a piece of ground glass, or a sensitive film held a few inches away from it. The rays coming through the center of the lens appear to focus more sharply than do those coming through the circumference.

A piece of metal or cardboard with a hole in it about one-third the diameter of the lens, placed in front of the lens, works a surprising improvement. The image loses a lot of its brilliancy, but it makes up for it by being much sharper.

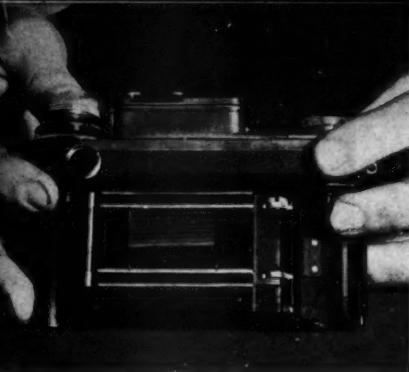
We now have the main optical system of the typical, low-priced box camera—a meniscus lens and an aperture plate. The lens gathers more light rays from a given point than the pinhole lens possibly could, and brings them to a focus on the film. The aperture restricts the light rays to the central portion of the lens.

With a pinhole or other experimental camera, the exposure can be made with a lens cap that is removed for the desired number of seconds and

SOME CAMERA



By WALTER E. BURTON
Illustrated by the author



then replaced in front of the pin-hole or lens. (As a matter of fact, many old-time photographers still use a lens cap in this manner for time exposures.)

With our new lens, the hand-capping method is too slow. So we rig up a system of levers and springs that will flip a piece of sheet metal back and forth in front of the lens, and cut a hole or slot in the metal so the lens will be uncovered for about 1/25th second every time the plate makes a passage. The result is a typical box-camera shutter.

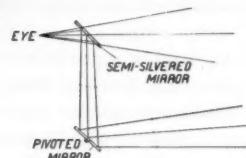
Now, if we can arrange some system for using roll films, including a key for winding the film, and a red window behind to keep track of how we wind it, we have a fairly versatile camera.

Like most photographers, we soon become dissatisfied, and start looking around for improvements. One of these will be a means of making the camera focus on a rose blossom three feet away as easily as on a distant building. To do this we arrange a mechanical system for moving the lens closer to the film and farther away from it. Now we have a focusing camera.

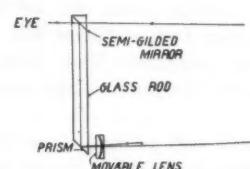
The adjustable lens is of no use, we soon discover, unless we have some way of telling just when it is in focus. The oldest method of doing this makes use of a sheet of ground glass replacing the film in the back of the camera. With the

shutter open, the image seen on the ground glass can be studied as the lens is racked back and forth until the sharpest point is ascertained. The film then is put in place and the picture made.

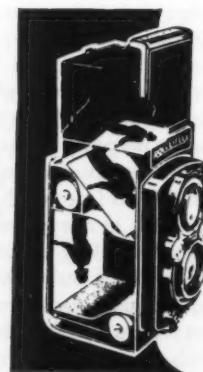
This system has long been in use, and is still a favorite. It is embodied, in another form, in the single-lens reflex camera. A



Focal-plane shutter in Contax III (top) is made of metal. The slight misalignment of the shutter is the result of propping it open for the picture.



Diagrams of two types of lens-coupled rangefinders. The top diagram illustrates the use of the pivoted mirror. The lower diagram shows the sliding lens type such as is used in the Contax.



Twin lens reflex camera indicating image (bottom) on film, on the reflecting mirror, and on the ground glass screen.

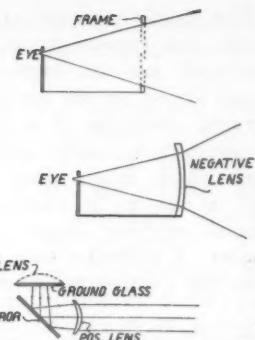
mirror, which swings on a hinge, is placed inside the camera in the path of the rays from the lens. When set for focusing, the mirror is at a 45° angle, and reflects the image from the lens upward to a pane of ground glass, where the image can be examined and focused. When the shutter lever is pressed, the mirror swings up under the ground glass an instant before the shutter opens. In this type of reflex camera, the shutter is generally of the focal-plane type, which lies just in front of the film at the back of the camera.

Another common type of reflex camera is the twin-lens. This might be described as two cameras fastened together, one on top of the other. The camera at the bottom has a place for film and a shutter. The one on top has a horizontal ground glass, and a fixed mirror, set at 45°. Both have lenses of equal focal length, and both lenses move in and out together. The top lens is used to *focus* the pic-

ture, and the bottom one to take the picture.

Practically all focusing cameras have a footage scale that indicates where the lens should be set to bring an object at a given distance into sharp focus. The only catch is that you must estimate or measure the distance from the camera to the object. Besides guesswork or a yardstick for determining the actual distance, optical rangefinders are employed. These are two-eyed gadgets, each lens of which casts an image in a single eyepiece. Adjustment is effected by turning a knob which rotates a glass prism or mirror, which in turn causes one eye to swing toward the other. (It is precisely like a man with a cast in one eye.) The crossed eye is swung back and forth until the image which it forms coincides with the image formed by the other eye. At this point, the distance can be read off on a scale, and the camera can be set to match. By means of levers and gears, the movable parts of a rangefinder can be hooked to the focusing mechanism of the camera, to give the coupled rangefinder used on many higher priced cameras.

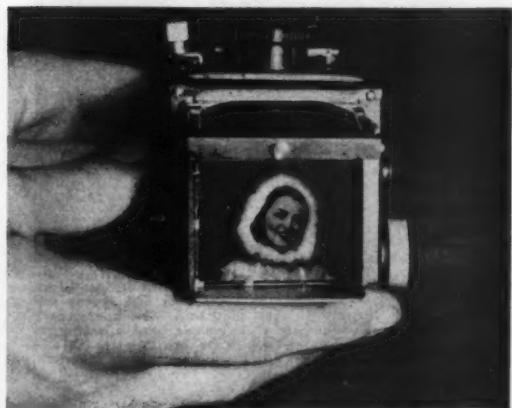
We began with a pinhole camera, moved up to a simple box camera, converted that to a focusing camera, and went so far as to put in a mechanism



Direct wire of frame finder (top).
Direct finder using one lens (center).
Waist level or "brilliant" finder (bottom).
A positive lens forms the image and a
ground glass screen or another lens (shown
by dotted line) renders the image visible.

by which the camera could be focused visibly. In much this way, the present-day camera has been evolved. There are, however, many improvements and fine-points of camera design which have not been mentioned.

Lenses, alone, constitute a whole study in themselves. Suffice to say that better, sharper, and faster lenses have been steadily evolved. The most commonly used type is called an anastigmatic lens. Such a lens may cost anywhere from a few dollars to several hundred dollars, and consists of three or more separate lenses put together to form an optical unit.



Looking down on the ground glass viewing screen of a reflex camera shows an upright, but reversed, image.

View camera for studio use, showing the rising front and the back's adjustment for swinging and tilting. Some of the corrections obtained by these adjustments are also obtainable during enlarging. The negative in such a case may be made with an ordinary hand camera and the image corrected or distorted at will by adjusting the lens or negative in the enlarger.



The simple aperture plate of the box camera has been developed into an ingenious device known as the iris diaphragm, consisting of a ring of overlapping plates and a lever which moves them in such a way as to make the central opening larger or smaller. A calibrated scale enables the *f* values to be read off.

There are numerous types of shutters. One of the most familiar is the between-the-lens shutter, of which the Compur and the Kodamatic are examples. These shutters are put between the elements of the lens. By means of a clever clockwork mechanism, flat metal leaves are made to open and close in such a way as to admit light through the lens for a predetermined length of time. The duration of the exposure is indicated on a scale. There may be a single leaf, double leaves, or several of them, depending upon the degree of refinement of the shutter.

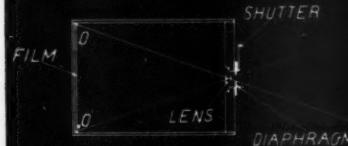
In studio cameras, the shutter may be placed behind or in front of the whole lens, and often consists of one or two flaps that open and shut like doors; or it may simply employ a curtain, like a miniature window blind, which moves past the lens, and in which there is a slit for admitting light.

A second, widely-used type is the focal-plane shutter. It gets its name, as was mentioned before, from the fact that it operates close to the film, and is therefore near the focal plane of the lens. One commonly used form consists of a light-proof curtain of cloth or metal in which there is an adjustable slit. The width of

PINHOLE CAMERA



SINGLELENS BOX CAMERA



One of the box cameras, of which there are millions in use, is not much different from a cigar box with a piece of film at one end and a pin hole at the other. (See diagram.) The box camera employs a piece of glass instead of a pinhole, and a shutter to open and close the opening rapidly. Some box cameras have a diaphragm next to the lens to permit adjusting size of aperture.

The lens in an inexpensive box camera is a single-element meniscus, held in place by a wire ring. Note the frame-type viewfinder.

the slit, and the speed with which it passes the film, determine the length of the exposure. Another kind employs a rotary disc having a suitable slit.

The box camera has one disadvantage: it is bulky. To obviate this, some cameras have bellows which are collapsible, and the camera is so designed that it can

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be folded into a small space when it is not in use.

Cameras can be hitched to a microscope, in order to take highly magnified pictures. In this case, however, the lenses of the microscope are used instead of the lens of the camera. Special microscopic cameras are constructed for this purpose.

The following definitions may prove helpful:

Infinity, on the focusing scale, is indicated by the symbol ∞ , and refers to

a point of focus at which everything from there to the moon and beyond is in sharp focus.

The *aperture* of a camera lens is the hole through which the light rays have to pass before they reach the film. It is adjustable in all but the cheapest and simplest cameras. *Diaphragm opening* and *stop* are the same as aperture.

F values are a way of expressing the size of the aperture, and are based upon a relation of the diameter of the aperture to the focal length of the lens. Thus, an $f/8$ aperture means that the diameter of the opening is one-eighth of the distance from the node (or central point) of the lens to the film.

Tripod sockets are threaded holes in the camera body to receive the screw of the tripod. American cameras use a $1/4 \times 20$ thread.

One or more *spirit levels*, which are small tubes containing water and a bubble of air, are sometimes mounted on cameras to help tell when the camera is being held level.

The shutter release is the button or lever which trips the shutter.

A cable release is a flexible wire cable, usually about six inches long, which operates inside a flexible tube. It is also used to trip the shutter.

A body release is a shutter release built into the body of the camera.

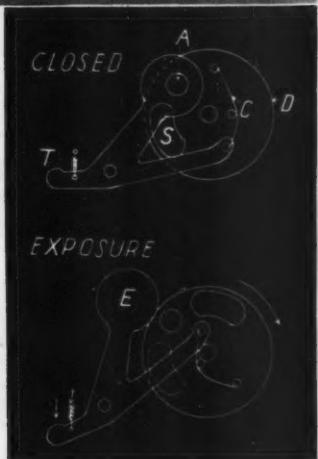
The bed of a folding camera is that part which swings down to a horizontal position, and on which the focusing mechanism and the tracks are mounted.

Camera adjustments: many cameras have no adjustment of the lens in relation to the film

(Page 93, please)



An iris diaphragm (above), used for varying size of light beam through a lens, is made of overlapping leaves that move inward or outward as the control lever or ring is moved to the desired aperture or "f" number.



SIMPLE BOX CAMERA SHUTTER

- A—Aperture admitting light to lens.
- D—Shutter disc.
- C—Spring that snaps disc around.
- S—Slot in shutter disc.
- T—Trigger or release lever.
- E—Capping disc, preventing double exposure as disc D returns after T is released.

In diagram marked "Exposure," the dotted line shows the position of the shutter disc slot an instant before T reaches downward limit.



3. Fred Allen (above) caught in a fearful moment by an NBC candid cameraman during a broadcast.

4. "We Protest," cry Howard and Sheldon in humorous garb.

5. Fred Waring and his orchestra (bottom) launching the first series of regular NBC television broadcasts.

Shooting

By WILLARD BALL

1. (Top) Arturo Toscanini directing his orchestra, a candid shot of the artist in a broadcasting studio.

2. Here is one thing radio stars do with their pictures — Irene Rich autographing portraits for distribution to admirers.

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Stars



Rudy Vallee, an ardent minicam fan, turns the tables and does some snapshooting himself.

IN New York City there is a studio where more stars of radio, motion pictures, sport, stage, politics, and business have been photographed than perhaps any other place in the world. The present major worry of that studio is how to keep Charlie McCarthy on the wall.

The studio, maintained by the National Broadcasting Company, and presided over by Ray Lee Jackson, displays pictures of prominent radio stars at several points in Radio City. And the job of keeping pictures of Charlie McCarthy in these displays has developed into somewhat of a headache. Charlie's friends, it seems, sometimes are gifted with nimble fingers. How they manage to remove the prints from the display spaces and spirit them away remains a mystery. But the pictures disappear, and new ones of Charlie have to be made. Jackson has learned by experience not to fasten the pictures too firmly, or to put them under glass. So great is the enthusiasm for the wooden star that some of his admirers might not stop at wrecking a portion of the building if that were necessary to release the prints.

The pictures Jackson and his men make are used the world over in newspapers and magazines to let you and many millions of other radio listeners know what Fred Allen and Fred

Waring and Lucille Manners look like. Jackson himself takes the portraits, for that is his special field. All of the N.B.C. photographers are candid-camera experts. Each week, 5,000 8x10 inch prints are mailed to hundreds of newspapers. These pictures cover a dozen different subjects, from what Charlie McCarthy did at the World's Fair, to what the latest evening gown looks like on one of the radio glamour girls.

Ray Lee Jackson is a seasoned hand at handling temperamental dynamite. Many of his camera subjects are high-strung, nervous, short-tempered; but he makes pictures of them where others have failed.



This unusual picture was obtained by combining portraits of Edgar Bergen and of his famous dummy.

A few minutes with Jackson would tell you why. He gives you, almost immediately, the impression that he has never known a stranger—that he can get along handsomely with anyone.

And there is another angle to Jackson's success. He wastes no time in making his pictures. He can, with either a candid camera or an 8x10 view camera, make 30 or 40 portraits in twenty minutes—and all will be usable. He can shoot 70 pictures of the same person and get 70 different prints. Temperamental radio stars are pleased at this speed. Furthermore, the sitter usually becomes so engrossed in Jackson's method that he or she forgets to be fretful. In action, Jackson resembles an acrobatic dancer. He is likely to jerk the sitter's head around rather abruptly into a new position to make the next shot; but no sitter seems to mind.

Fred Allen provides the most fun during portrait-making, Jackson says. Many of Fred's pictures are stunt or gag poses; and he can think up gags faster than Jackson can shoot them, which is pretty fast. Both Fred and his wife, Portland, are easy to work with.

Some of the seasoned motion picture stars who appear on the air, and who have had hundreds of hours experience before a movie camera, are positively nervous when they try to pose before Jackson's still camera. Jackson isn't sure he knows the reason for this, but he has learned that, if he gives them a little time, and lets them become interested in what he is doing, their self-consciousness disappears.

Arturo Toscanini, noted orchestra leader, is probably one of the most difficult subjects for a photographer, and he has refused to pose for most of them. But Jackson made 16 pictures of him in 14 minutes. These portraits were the only ones Toscanini posed for in the United States. They were used by him throughout a recent tour.

All of Edgar Bergen's favorite pictures of himself and Charlie came from Jackson's studio. These pictures have had unbelievable circulation, having been pub-

lished all over the world. Bergen and Charlie are "naturals" for the camera, and are easy to pose and photograph.

Ed Wynn, Jackson says, looks alike in all his pictures, but he always cautions the photographer not to open the shutter until he (Ed) is in the mood. This mood, as recorded by the camera, is always the same.

Rudy Vallee. Besides being easy to photograph, he is a camera hobbyist, and, Jackson says, probably knows more about the technical end of photography than he does. Rudy has a lot of camera equipment, likes to shoot candid pictures, and likes to talk about lenses, films, and other phases of the world's biggest hobby. He is one of the few prominent persons who can turn the tables on candid-camera shooters. Rudy often sends Jackson prints of a personal nature.

If Jackson were to enumerate all the celebrities he has had before his camera in the little room on the fourth floor of the R. C. A. Building, the list would look like a roster of the world's big names. There would be such political notables as Al Smith, Jim Farley, Gen. Hugh Johnson; such stage names as Helen Menken; and almost all the operatic stars of the past decade. Not long ago, Jackson shot his 10,000th "radio" portrait; and most of the 10,000 subjects were big names that have taken the air.

In the photographic files at N. B. C. can be read many little stories of success and tragedy. Over a period of ten years, repeat photographs are made of the leading radio personalities. Reading from left to right, these show how a particular star has aged, how another star has blossomed from a shy, just-in-from-the-sticks damsel into a radiant lassie with plenty of glamour. Under this heading comes Dorothy Lamour, whose first glamorous publicity portraits were made by Jackson. And in the files can be read the sad stories of radio personalities that soared to the zenith, shimmied there for awhile, and then slipped, for some reason or other, into oblivion.

Radio performers pay nothing to have

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their portraits made in the N. B. C. studio. If they wish, they can purchase prints for their own use. One time the even tenor of the studio was upset by an order from Max Baer for 10,000 prints of himself. He got them.

"If you are a photographer, forget the mechanism you use," Jackson says. "You are then more likely to get good pictures. About three-fourths of the photographers, professional and otherwise, who try to make portraits or other type of artistic photograph stress the mechanical side of photography so much that they neglect the art end, and consequently do not get a picture worth making."

He now has somebody to do the darkroom work, so all he does is pose the subjects and make the exposures. His 8x10 studio camera is equipped with a Voigtlander lens, and he usually uses it stopped down to f18. On the day he was interviewed, his holders were filled with Agfa Triple-S panchromatic film: he didn't know this, until he asked one of his men.

He makes all his portraits on panchromatic film, and always uses a small stop. Since his pictures are intended for publication, they must be sharp and snappy. No fuzzy prints for him.

The exposure that Jackson gives is another thing about which he worries little, because it is a matter of instinct or reflex action with him. He uses a bulb, pressing it to open the shutter as he raises his arm upward, releasing it to close the shutter on the down-beat. The exposure sounds as if it might be somewhere around one-fifth second. Jackson uses conventional lighting units—floods, spots, etc.—to illuminate his subjects. He shifts these lights and the subject around to get the effects desired.

(Page 94, please)

NBC photographer Jackson was a pioneer in pictorializing the glamour of Dorothy Lamour (right). Fancy backgrounds such as this one are no longer used, because editors usually block them out.

Judy Canova dresses up for Jackson's camera.

Charlie McCarthy signs the World's Fair guest book, with Edgar Bergen helping, and Mayor LaGuardia and Grover Whalen looking on. An example of the work of a radio news-photographer.



Easy DIRECT copying

**Simple methods for rapid copying
with or without the use of a camera**

By WALTER ENGSTROM
Illustrated by the Author

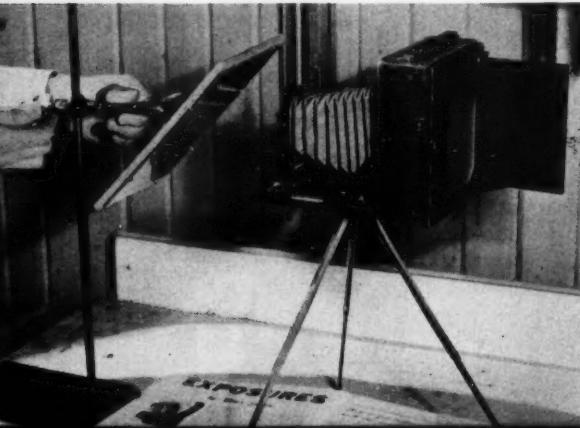
CAMERALESS copying requires no equipment but a few sheets of sensitized paper and developing materials. Use any enlarging bromide such as Velour Black or Brovira, in No. 4 or 5, or the contrastiest grade obtainable. In the darkroom, lay a piece of it on this page, with the sensitized side next to the printing. Clamp the page and paper in a printing frame or lay under a sheet of glass to insure good contact. Now expose to white light for a second or two, and develop in the usual way. If your exposure has been approximately correct, you will have a faithful but reversed or "mirror-image" reproduction of the printed page with light gray letters on a dark gray background. You can use this print as a negative for making a contact positive.

What happened was this: With this method, the exposure is not made through the printed page, but through the photographic paper. The light, striking the back of the sensitized paper, passed through the light sensitive emulsion to the printed

page. Wherever there was printer's ink, the light was largely absorbed, but where the paper was white, much of the light was reflected toward the emulsion. Thus areas of the sensitized paper over the dark printing received the least exposure to light.

It is easy to copy originals such as letters which are printed on one side only. The printed sheet is used exactly like a negative in ordinary printing. It should be reasonably transparent. Treatment of the original with a transparentizer such as castor oil or xylol will improve the contrast. Xylol has the advantage of evaporating within a few minutes after use, without damaging the original unless it contains ink made of greasy pigments soluble in xylol.

Cameraless copying, once the knack of giving proper exposure is acquired, is surprisingly simple and time saving. Carry development to completion, in order to get contrast. In making mirror-image negatives, a slight over-exposure followed by full development will improve the printing quality when positives are made. Such negatives, when viewed like



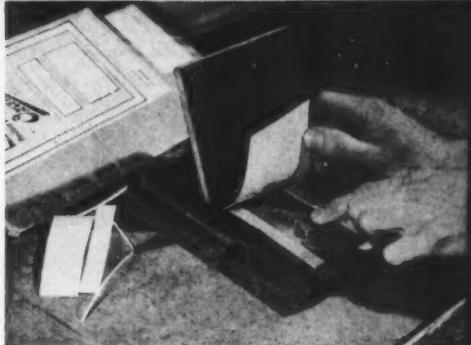
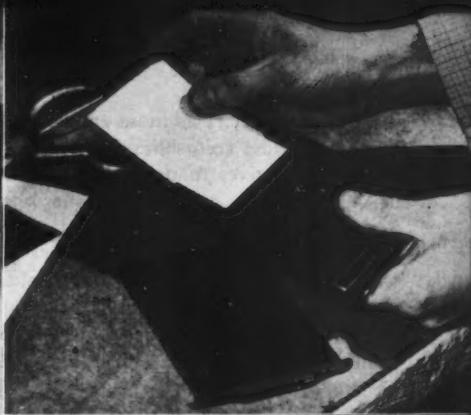
Camera and mirror arranged for making unversed copies on enlarging paper (similar to photostat). The mirror, of plate glass, came from a dollar store. A chemical ring stand is used as a support.



Cameraless copying of material printed on both sides (above). Light passes first through the sensitized paper and is differentially reflected by the printed matter to be copied.

Inserting bromide paper into cut-film holder for use, instead of film, in copying. Bromide (enlarging) paper is used. Chloride (contact printing) paper also may be used but requires much longer exposure. For roll film cameras, paper is easily cut into strips in the darkroom and wound on a regular film reel.

Solid objects, such as a key (right) may be photographed in silhouette. When a printing frame is not desirable as when copying bound books, magazines, etc., a sheet of glass is sufficient to hold the subject flat under the sensitive paper.



prints, appear hopelessly flat and dense; but when seen by transmitted light, they have good contrast. So the only way to judge them is by handling them exactly as if they were on a transparent base.

You can speed up the copying process, particularly if a special cameraless copy paper is used, by forced drying. After development, fix the paper negative in hypo for a few minutes, wash it in clear water, and then lay it, image side up, on a chromium ferrotype plate or a piece of other metal that is smooth and clean. Blot to remove excess water, and warm the metal plate over a gas burner or electric stove. The paper will dry in two or three minutes. To prevent curling, a piece of cloth, such as a linen towel, can be laid over the negative. Be careful not to heat the plate so hot that it will scorch the paper. The paper negative is now ready to be printed by contact like any other negative. Use a contrasty grade of bromide enlarging or the slower chloride (contact) paper for the positive.

Cameraless copying is useful in keeping records of important papers; copying tables, articles, and even pictures from the printed pages of books, newspapers, and magazines for later reference; and for making copies of invitations, club notices and bulletins.

But there are times when a more flexible method of photographic note-keeping is desirable. With a camera of fair size, say $2\frac{1}{4}'' \times 3\frac{1}{4}''$ or larger, the paper-negative process can be expanded. A camera equipped with a bellows that can be racked out is desirable. This permits copies to be made either smaller or larger than the original.

The simplest way of making a paper negative in a camera is to load the film or plate holder with bromide enlarging paper of contrast or extra contrast grade, and expose as if it were a regular negative. If the camera takes roll film, the paper can be cut and rolled just like the film. Determine the exposure by making tests. You probably will be surprised to find that you can give exposures of a few

seconds, or as short as those employed for moderately fast color-blind film.

Paper negatives made in this way will be mirror-image copies, with the blacks and whites reversed. For occasional reference, they can be filed away and read with the aid of a mirror, or by holding them between the eyes and a strong light. Usually, however, it is desirable to make positive prints. Contact printing is the best method, although it is not impossible to make enlargements from paper negatives when a powerful enlarger is used. If you are going to make only the negative copy and read it with a mirror, shorten the exposure and increase the development, to give maximum contrast without too much density. If you intend to make positive prints, give a longer exposure, and full development, to produce a better image by transmitted light.

To eliminate the reversal of the negative copy, and the necessity of using a

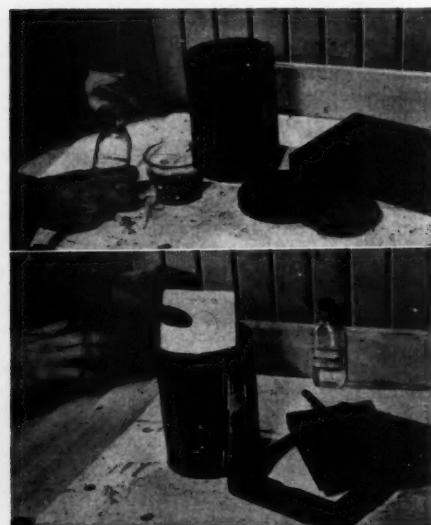
mirror or making a positive print in order to read it easily, the image can be reversed before it enters the camera by means of a right-angle prism or mirror placed in front of the lens. Prisms suitable for this purpose usually are costly but very good work can be done with a ten-cent store mirror. Strictly speaking, a first-surface mirror should be used, to eliminate the secondary reflection produced by the front surface of back-coated mirrors. A first-surface mirror measuring about 3x5 inches costs \$2.50. Such a mirror probably is worthwhile if much copy work is to be done, but the amateur can get along with an ordinary vanity-case mirror costing a dime or so. Select one free from distortion, and with uniform silvering. Thin plate glass is best. The surface reflection from such a mirror, while noticeable to the eye and visible on the ground glass, will not register enough to cause trouble on bromide paper while the image produced by the silvered surface is being photographed.

Mount the mirror in front of the lens, and at an exact 45-degree angle to the lens axis. This means that the matter to be copied will be placed at one side, at right angles to the way the camera is pointing. Place the mirror as close to the lens as possible without cutting off any of the image. The farther the mirror is from the lens, the larger it must be. Experiments will indicate the best size, but generally it is better to have a mirror too big than one too small.

Bromide enlarging or similar paper is employed for such copy work because of its cheapness in comparison with films or plates. However, for the best work, where duplicate copies of a highly faithful and accurate nature are desired, copying on film in the conventional manner is preferable. When any quantity of direct copying is to be done, diazo paper can be used. The Ozalid Corp. (354 Fourth Ave., New York City) list these advantages of Ozalid paper:

First, direct positive printing—producing prints with a white background and without the aid

(Page 90, please)



Removing a print from the ammonia chamber, which is in this case an empty 5-lb. sodium sulphite can of the type found in photo darkrooms. Automatic printers and developers are used in commercial work.

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Using SPOTS with **FLUORESCENT LIGHTING**

By GENE KORNMANN and FRANK POWOLNY
Twentieth Century-Fox Studios

THE Fluorescent lamp produces a light similar in quality to the old north skylight. Fluorescent lamps have many outstanding advantages as a photographic lighting source. They are cool and free from the disturbing glare of the incandescent or arc lights. All photographers will appreciate the long life of these lamps (2,000 hours) and the fact that their consumption of electric current is very low. Actinic value of the light is also much greater per watt.

There are, of course, limitations to the use of the Fluorescent unit. It does not have the carry-



Lighting for the portrait above. Notice how close the fluorescent light unit is to the model while the spotlights are placed at greater distances.



ing power of the tungsten filament or arc equipment. This must be recognized by the photographer, and, for this reason, the lights must be used closer to the subject.

There is a great difference between various Fluorescent units. Many of them must be used within two or three feet of the subject. The unit illustrated in the accompanying photograph can be used at a distance of five or six feet. This particular lamp has another advantage in that the stand is

(Page 100, please)

PATTERNS



HERE is as much an art to seeing photographic patterns as there is to seeing beauty in the commonplace. The raw materials are everywhere at hand—in the arrangement of flowers on a stem, the veining of a leaf, the play of sunlight on the snow, the shadows cast by a picket fence, or the rain-glazed cob-

blestone street. But the completed picture is more than a snapshot of any of these things, for it is the photographer's interpretation of his subject. Passable pictures of people and objects are merely a matter of a snapshot well exposed and properly developed and printed. Pattern pictures are not records but the product of a

EVERYWHERE

**Patterns abound in the structure, forms, placing,
and arrangement of everyday things. Look
around — there are patterns at your feet**

By F. BERKO
Illustrated by the Author



1. All-over pattern.
Leica IIIa camera,
Super X film, f6.3,
1/100th second.

2. Contra-light accented
the pattern in the ar-
rangement of these wet
cobblestones along the
Seine embankment.
Leica IIIa camera,
Super X film, f9, 1/40th.



3. Combination
of spot and all-
over patterns. Leica
IIIa camera, Super
X film, f6.3, 1/60th
second.

creative mind which can find satisfying beauty in the *arrangement* of simple materials.

The word "pattern" means different things to different people—to the dressmaker it is a tissue plan for cutting a dress or coat; to the foundryman it is the model from which the mold is made; to the artist it is ornament in repetition. Any form whether it be a cube, a nail, or an abstract design, if repeated at regular intervals, will form a pattern just as surely as recurrent sounds give rhythm or cadence.

Pattern is found, however, even where the forms are neither identical nor yet recurring at set intervals. Dandelions make a pattern on the lawn just as do the pebbles on the path, the leafless twigs of a tree against the sky, and the sands ribbed with wind-woven devices.

Regular repetition of a form or forms produces a stylized or *formal* pattern. The

casual occurrence of parts, with which the photographer is chiefly concerned, will often produce an informal pattern, but they are not considered complete until they are repeated. The bricks in Fig. 1 form a pattern in themselves, since they are forms repeated at regular intervals, but one section of the walk, i. e., a group of bricks surrounded by the white strips of cement is not a pattern but a unit which, when repeated, forms a pattern. The two figures form a unit which, if repeated, would likewise form a pattern. The entire picture could also be considered a unit for a pattern on a larger scale.*

In looking for patterns the photographer will find it helpful to know something about their structure. The unit or units of the pattern may be anything, but the order of repetition determines the pattern and its effect.

The simplest of patterns is the *stripe* which consists of a series of parallel lines running in one direction. The interest in striped patterns depends upon the spacing and relative proportions of the widths of the bands. *Cross stripes* as in Fig. 6 vary such a pattern.

Spot patterns are probably the most versatile, since a wide range of effects can be obtained with them by close or wide distribution of the units and by contrasting large units with small to relieve the monotony. Stiff forms can be combined with flowing and the floral with the geometric as in Fig. 8. Even the deliberate repetition of the same unit with its monotony can be effective. Its success, as in all types of patterns, depends upon the distribution and the charm and character of its details.

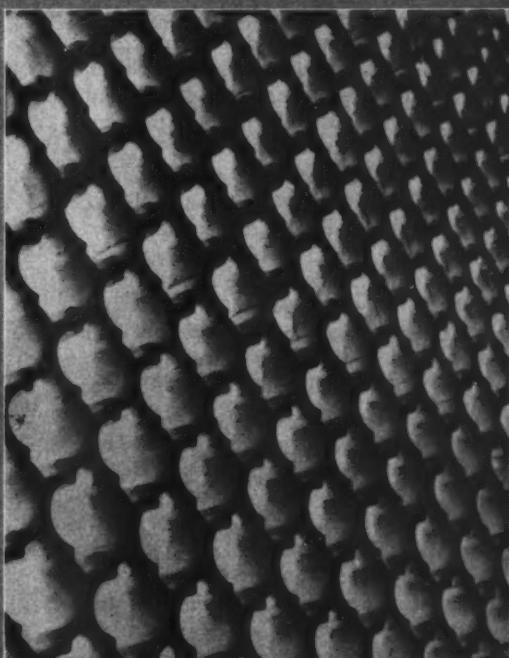
In an *all-over pattern*, Figs. 1, 2, and 4, the design is connected and can be re-

peated indefinitely in all directions.

A *counter change pattern* is composed of a series of identical figures which fit into one another exactly but are alternately of different colors or tones. The best example of this is the chessboard.

Different types of pattern can be combined effectively. In Fig. 3 spots (the doorways with people in them) are combined with an all-over, cross-line pattern.

The designer has an advantage over the photographer in the control of his pattern. He can combine any units or groups of units in any arrangement which pleases him. He can adjust his colors or tones to suit his needs, and he is not troubled by perspective or lighting. The photographer, on the other hand, is limited by the subjects available, the lighting and perspective. His patterns, therefore, will be free-less formalized, except where controllable still life is used. An endless suc-



4. All-over pattern. Leica IIIa camera, Super X film, f4.5, 1/30th second.



5. (Left) Pattern serves to break up the uninteresting part of the picture while centering the attention on the subject. Leica IIIa camera, Super X film, f/6.3, 1/60th second.



6. Stripe pattern (top) modified with cross stripes. Leica IIIa camera, Super X film. Exposure f/6.3, 1/60th second.

7. All-over pattern (bottom). Leica IIIa camera, Super X film, f/6.3, 1/60th.

cession of patterns can be arranged and photographed using sugar cubes, matches, flowers, leaves, toy soldiers, airplanes, and a multitude of odds and ends found around a home or in the five-and-ten cent store.

Backgrounds, lighting, and arrangement are more important than the objects themselves. Sugar cubes, for example, can be placed in rows on a black background, flat lighted, and they will be nothing more nor less than white squares on black; but lay them on a light paper and cross light them so that they cast heavy shadows and the result will be an effective pattern.

Backgrounds can cause the photographer a great deal of grief while making pattern shots out of doors. Too often it is not possible to clear out the debris—whether it be tin cans or a few extra leaves. Such problems call the photographer's ingenuity into play. Perhaps another camera angle will eliminate unwanted material, or the leaves can be picked off (if the tree isn't too high).

Some annoying backgrounds can be soft-pedaled by opening up the lens and thus cutting down the depth of focus. Others can be eliminated by cropping when the print is made.

Filters often will emphasize pattern. For example, a row of wind-bleached wooden shacks against a light blue sky may not make an interesting shot because the grey values of the sky and the shacks are too close in a black and white shot. Use a light or medium red filter and the repetition of stark buildings against a dark sky may be extremely effective. Whenever a subject with a sky background is photographed, consider the relative values and use a filter to build up contrasts.

The photographer has little control over the majority of pattern subjects. The parts are prearranged leaving him to compose them as he can in his viewfinder. The success or failure of a pattern picture lies in the photographer's elimination of extraneous detail. The art of pattern lies in expressing oneself within given bounds—of finding a few cobblestones or bricks which can be photographed as a pleasing pattern rather than trying to include the whole street. Someone has described pattern as "something not all ours which we find and make our own." A pattern shot is just that, since it represents the photographer's choice of material, angle, lighting, and his ability to exclude unimportant material.

8. Spot pattern combining geometric (iron-work and bench) with floral designs. Leica IIIa camera, Super X film, f6.3, 1/40th.





Meloy Brothers solve problems of producing photo-murals on big-business scale

FOUR years ago two brothers in a small town near Indianapolis were losing their financial shirt-tails in a silk screen process making those large "standees" and cut-outs you see in front of theaters advertising various pictures.

They had more orders than they could fill and they were unhappy every time they got another order, for the majority of them resulted in a loss to the hard-pressed brothers.

Photography pulled these brothers from the brink of bankruptcy and sent them sailing from a one-man darkroom to a three-story building in which they employ 23 persons.

It started when Joe and Paul Meloy, now 42 and 44 respectively, sat down at a table and agreed not to get up until they had decided what to do with their white elephant business. They knew there was a big demand for moving picture advertisements—window cards, one, two

Blowing

and three sheets and the standees. But the silk screen process was too expensive to allow the Meloys to meet the prices of their competitors who used lithography and linoleum block printing. It was draining the Meloy finances because, in order to get the business, they were forced to shade prices too much.

Weary after several hours of fruitless discussion, they decided to abandon the work and devote themselves solely to operating their small theater in their home town of Shellyville, Ind.

Suddenly Joe said, "Would photography work? . . . Could we enlarge pictures to the big size we need, then have cuts made?"

They put the question to a photographer. He told them that "it might work." Immediately the Meloys hired a darkroom man and gave him a small cubicle in which to work. Experiments indicated it certainly would work and the

Meloys From Meloys enlarger of it in manufa store w murals.

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I. Photomurals make attractive wall decorations for modern clubs, offices, and homes.

By HAMLIN WELLING

'E'm Up BIG!

Meloys plunged head-first into it.

From that inauspicious beginning the Meloys jumped into bigger and bigger enlargements until now the lesser part of their work is for theaters. They do most of it in making huge backgrounds for manufacturers' exhibits, large department store window displays and gigantic wall murals.

With the big projector the Meloys now have, they can enlarge a 35 mm. negative to 18 by 40 feet. This would have to be done by making a 5x7-inch enlargement, copying it, then printing the resulting 5x7 inch negative. They haven't yet been called on for a mural that large, but they can do it. To date their biggest job has been enlarging a 5x7 inch negative to 15 by 30 feet.

But they have blown up a 35 mm. negative to 6 feet 8 inches by 9 feet 4 inches, a magnification of 7,168 times. They did it without copying, that is, shooting di-

rectly through the 35 mm. negative. This was made for Agfa Ansco's exhibit in the New York World's Fair. It was a scenic view of mountains, trees and sky.

In the three years the Meloys have been in photography, they have discovered that available equipment, especially projectors, was not suited to their needs because rapid production was not possible. So they designed and built their own projectors, which they claim give off less heat, result in less negative distortion, are easier to handle and give a more even distribution of light.

They built one projector for routine work and the other for huge enlargements. To avoid vibration, they hung the smaller projector from the ceiling. They only use the big projector in the dead of night when auto and train traffic is greatly reduced. This is essential as some of their exposures run as long as a half hour when extensive dodging must be done.



Both of the projectors are alike in construction except in size and in that the big one rolls on the floor. The Meloys built them out of angle iron, forgings made to their own pattern and cast in a local foundry, leatherette (an imitation leather) for the bellows, and a steel lamp housing. The smaller one has a Zeiss, f4.5 flat-field projection lens while the larger uses a Bausch and Lomb Tessar, f4.5.

The smaller projector takes, without adapters, 5x7-inch negatives and is capable of blowing them up to 8 by 14 feet. With adapters any smaller size film can be used. The big one, without an adapter, was built for 8x10-inch negatives but it also can accommodate any smaller size when an adapter is used.

Now let's watch an order as it goes through the Meloys' shop. Either a print or a negative is usually sent in with the order. The Meloys maintain a large, classified stock of general pictures—scenic views, industrial shots, etc., and sometimes the customer will call for one of these. In this case let's assume the print is a five by seven inch. It is a man in a palm beach suit talking to a girl, planned to be an 8 by 10 foot wall mural for the men's shop in a department store.

The print first is copied onto a 5x7-inch negative. Preliminary examination will reveal whether dodging will be necessary to obtain a balanced negative. Now for the blow-up.

Previous experience gives them an idea of the exposure time necessary. They decide on what exposure to use, then test it by placing five small strips in the corners and center of the proposed

2. Copying a positive in order to obtain a better and a larger negative. (Top of page.)

3. Two special home-made projectors were devised by the Meloy brothers to make huge enlargements possible. Here an operator is projecting a 5" x 7" negative for a TWA mural.

4. After the print is developed it is mounted on canvas, plywood, board, or directly on the wall surface it was designed for. Here a workman smoothes out a print just mounted. After mounting, the mural is placed in jigs or presses to prevent warping or curvature.

5. When a mural has been mounted and dried thoroughly it is retouched. Here are two artists working on small enlargements. Retouchers often must use ladders when finishing large photo murals.

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6. The Meloy brothers' collection of negatives includes almost every subject which any advertiser would need whether it is models on the beach or a skier skinning down a mountainside.



enlargement image. Development of these strips will prove whether the proposed exposure time is correct. In this case, let's say they decide to expose 30 seconds at f/16, using a 1,1000-watt lamp.

If the test turns out all right, they thumb-tack to the wall the strips of printing paper. These come in rolls of 100 yards and are either 40 or 50 inches wide. In placing them up the strips are overlapped slightly.

When the exposure is made, the strips, one by one, are sent to the developing tanks. These are 36" x 56" x 12", constructed of cypress wood. Special handling must see that each strip hits the developer evenly and the end of each one must be submerged within 30 seconds after the first part of the strip goes in.

All the strips must be in the developer within 30 minutes after the exposure has been made. The operators must be absolutely sure that all strips remain in the developer for exactly the same time. Otherwise, there will be a variance, with some strips being over-developed in comparison with others.

The strips are developed as any other print. Following the wash, the prints are

ready to be mounted on canvas, plywood, compo-board, wood, or directly on a wall surface. The mount, to avoid curvature or warpage, is placed in jigs or presses and allowed to dry slowly.

After the print dries, hand colorists, who use air and camel's-hair brushes, swabs, stumps, or whatever instrument needed, touch up the uncolored print.

In their developing tanks, the Meloys confine themselves to using metol hydroquinone developer. The hypo is a standard mixture with glacial acetic acid hardener.

Paper used for printing arrives in rolls of 100-yard lengths. The Agfa Brovira is 40" wide and the Gevaert is 50". These are the two papers the Meloys use.

If it is necessary to copy a color print, either filters or color sensitive negatives must be used to reproduce the various densities of tone in their proper relationship. Otherwise, common commercial film is used.

The Meloys have shipped murals to many points on the globe, including New Zealand, Japan, Paris, Havana, the Philippines, and several South American cities.

7. Artists had to use ladders to color this 11"x18' enlargement used for window display in a department store.





NEWS CAMERA

By A. J. EZICKSON

MINIATURE camera devotees among the newspix shooters in Manhattan include, on the *N. Y. Daily News*, Walter Engels, Joe Costa, Charley Hoff and Eddie Jackson. Alan Fisher of the *World-Telegram* finds the Ikonflex 2½" x 2½" a handy instrument for his superb shots. Dick Sarno of the *Mirror* sticks by the Contax. At the *Sun*, Anthony Lanza swears by the Exakta. Jack Layer gets a swell play in the *Journal-American* daily pages with his Contax pix, and also at the *Mirror*, Leo Lieb uses both a Contax and a Super Ikonta B to get his page-one superbs.



News shooters wearing high hats and gaudies in their lapels—identifying emblems of the Grand Mogul of the New York's World Fair—met Grover Whalen on his return from Europe. "Swell stunt, boys," he warmly commented. George Peck, the ship line's publicity director, had fathered the brilliant idea for the top gear and boutonnieres.

Pickups with the newpix: Leonard Wohlfel, former Wide World manager in London, recently returned and stated flashlight pix from abroad will soon reach low ebb, due to fact that many factories making flashbulbs are being converted into munition plants . . . Frank Muto, International foreign ace, is sending back much horror stuff and closeups of the Finns on the advance, has had many narrow escapes from the Soviet bombings in Helsinki . . . Mike Ackerman, Acme veteran, stopped his car on a Jersey road the other day to give Mayor Fiorello LaGuardia of New York a pickup. The Mayor's car had broken

down, and Mike spotted Fiorello's thumb signal . . . Sammy Falk of Wide World paused long enough on his Florida vacation to make a layout of fish pictures at the Marine Studios Oceanarium at Marineland, and see them hit the rotogravures' page-one the country over, and hopes to capture top prize in several news picture contests with the same . . . Which goes to prove that a good news photog will spot them wherever he goes.

Score nice scoop for Arthur Brower, Wide World photographer, at the Toronto Maple Leafs-New York Rangers hockey game at Madison Square Garden—the only news photog

to secure a shot of a short-lived but spirited scrap in which the opposing players exchanged many a blow. Brower, using an Ernemann f.8 camera, was on the 49th Street

side of the arena, with his camera focused on the action at the cage, when the players suddenly swept to within five feet of where he was sitting. When the fight broke out, Brower hopped over the railing, slid over the ice, focused the fray and snapped two swell shots before the fight stopped as suddenly as it started. Other lensmen, coming on the run from the 50th Street side, were too late. Young Brower's news picture of the night got a page-one display. The photog got a scraped shinbone.

The arrival of the U. S. Cruiser Tuscaloosa with 578 members of the crew, of the scuttled German liner Columbus was a red-letter event for Manhattan's picture gatherers. For 24 hours following the flash that the crew had deserted the burning ship 450 miles off Cape May, N. J., the New York offices of the four major picture agencies, Wide World, Associated Press, Acme and International were beehives of activity. Special tugs were chartered to meet the American warship in lower New York bay. Weather permitting, planes were



Crew films sinking liner.
Ellis Island, Brooklyn Navy Yard. Others were sent to the Seamen's Institute in event the Columbus' crew would
(Page 100, please)

The MACHINE GUN . . . Camera

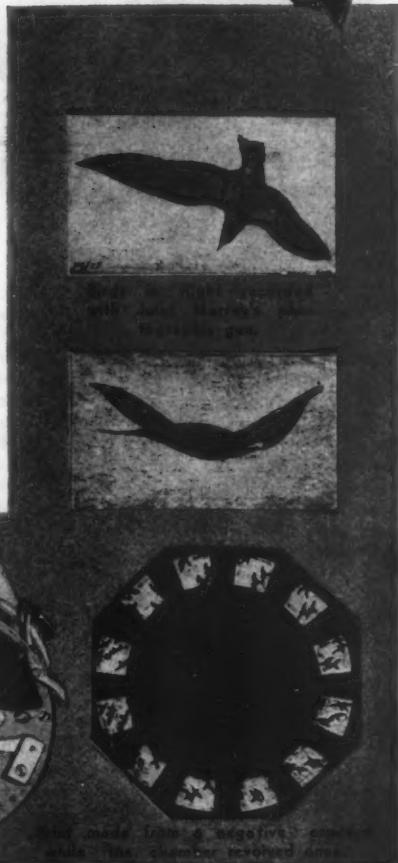
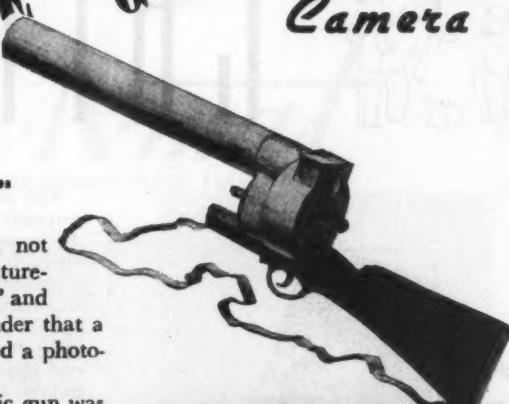
By DR. OTTO BETTMANN
Illustrations from the Bettmann Archives

THE amateur photographer, not satisfied with gentle "picture-taking," speaks of "shooting," and "shots," and "blow-ups." No wonder that a photographer's fertile brain devised a photographic gun.

In 1882 a workable photographic gun was invented by Etienne Jules Marrey, a student of the motions of men and animals. Marrey found that the camera in his equipment was not constructed to suit his purposes, for it was difficult to bring moving subjects into the field of the camera. Marrey devised an instrument that facilitated the taking of successive, instantaneous exposures of objects in motion.

This implement was a very large revolver with a stock supported by a man's shoulder.

The barrel was a telescope in effect, containing the camera lenses. There were twelve
(Page 103, please)



The barrel of this gun (above) contained the camera lens. An exposure was made during each revolution of the shutter, while the shutter revolved.





being CRITICAL



MAMMY. Robot camera, Panchromatic film, f/16, 1/25th second.

"MAMMY" is an interesting snapshot, but in the hands of a proficient darkroom worker it could be transformed into a print of salon quality. Cropping the picture as indicated will greatly improve its composition. Local projection control should be exercised so that the area below the ear and around the neck does not become too black while the white area around the face should be shaded so that it gradually blends into a darker tone in the upper right-hand corner. If possible the entire white background should be darkened somewhat. The hair area can also be toned down a little as it is too sharp and attention-arresting as it is.

The shading of the background can be taken care of either by projection control or, if the photographer is really ambitious, by using the paper negative process. Since this picture was taken in the open air with the sky as a background, the use of a medium yellow filter would have darkened the sky and saved considerable work. Corrections which are made before pictures are exposed require little extra thought at the time, but pay many times over in darkroom time saved.

The small patch of white dress which has purposely been left inside the crop marks in the lower left hand corner must also be darkened. It is a disturbing influence as it is but it should not be entirely cropped off, for the indication of a white dress, small as it is, lightens the tone of the entire picture. This area also helps to balance the light tone of the upper right-hand corner. This type of picture always shows to advantage on a buff paper of interesting texture which has been toned to a warm brown.

THE person who made "MARBLES" knows as well as anyone that the feet and legs of the boys in the foreground should not have been cut off. Either haste or parallax must be responsible. If the former, take the camera out a few times without any film in it and spend an afternoon sighting objects and shooting them quickly until accuracy is not sacrificed to speed. If the latter, experiment until you know exactly how much to allow for parallax.

The boys in this picture are playing marbles. Why not show the marbles? They would give the picture a focal point or center of interest around which the action revolves. The colored boy in the center of the picture, looking at the camera, divides the picture in two and destroys all the atmosphere which the shot might otherwise have.



MARBLES. Argus camera, Agfa Ultra-Speed Panchromatic film, f/8, 1/300th second.

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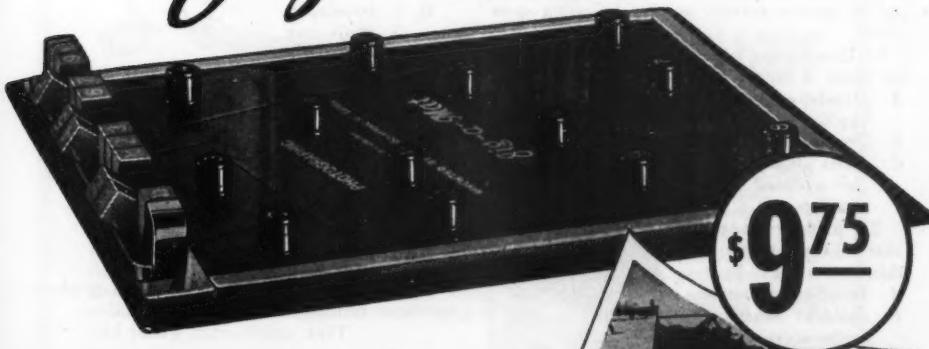
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K A M E R A

- Quiz

TEST YOUR KNOWLEDGE OF PHOTOGRAPHY—THEN SEE ANSWERS AT END OF QUIZ

By VICTOR H. WASSON

WHAT do you know about *developing* and what are your questions on this all-important subject? Check your answers and see if you can do better than the average of six out of twelve correct on the following questions.

1. Usually the time of development given for tanks is longer than for trays. Why?

- A. Developers oxidize rapidly in a tray.
- B. Tray holds more.
- C. Films usually are better agitated in tray development.

2. A faulty negative that always prints like this, was caused by:

- A. Insufficient agitation.
- B. Sudden changes in temperature.
- C. Stale Hypo.
- D. Films not properly separated during development.

3. If you wanted fine grain negatives but had to choose one of the following combinations, which would you take?

- A. A slow, fine film and an ordinary developer?
- B. A coarse, fast film and fine grain developer.

4. It's a bad habit, but some of us smoke in the darkroom. What is the main objection?

- A. Contamination of solutions from tobacco fumes.
- B. Definition in enlargements may be lessened.
- C. Smoke gets in your eyes.

5. What is the earliest stage of the developing process at which films may be safely examined under ordinary light?

- A. Just after development.
- B. While in the short stop.
- C. As soon as it is in the Hypo.
- D. After five minutes in the Hypo.

6. If you were called away from your work and wanted to bottle your chemicals for an hour or so, in which order would you siphon them through the same tube so as not to contaminate the solutions?

- A. 1. Hypo
- 2. Developer
- 3. Short stop



B. 1. Short stop

2. Developer

3. Hypo

C. 1. Hypo

2. Short stop

3. Developer

D. 1. Developer

2. Short stop

3. Hypo

7. Two of the following are different names for the same chemical. Which are duplicates?

Mercuric Sulphide

Sodium tetraborate

Mercuric Chloride

Calcium Fluoride

Corrosive Sublimate

Bismuth Subnitrate

8. A. Overexposure is as likely to produce excessive contrast as overdevelopment.

True False

B. Once a glossy print is dry it is impractical to resoak and ferotype it.

True False

C. If you put a kodachrome in your enlarger and made a print on bromide paper the result will resemble a negative rather than a positive.

True False

D. If, in compounding a formula that called for one ounce of sulphite, you accidentally put in two ounces, you could save the batch by doubling all the other quantities.

True False

9. While developing five and six prints at once to save time, one came out like this. The negative was perfect. What happened?



A. Two prints stuck together?

B. It was only partially submerged when first immersed?

C. Hypo splashed into the developer?

D. Light struck?

(Page 113, please)

spotlight news!



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A REAL SPOTLIGHT

WILLO No. 88 Low priced! Efficient!

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Has all steel body construction to withstand extreme high heat of No. 1 Photo Flood Bulb or No. 212 General Electric photo enlarging bulb, in an enclosure and is finished in heat-proof black crackle with a chromium-plated pull chain socket. Complete with rubber cord, rubber plug \$1.50 and heavy duty clamp.

WILLO

H. R. Combination Tank

A light, deep lipped cover which permits use of white light while developing and a floating lid to protect solutions from evaporation and oxidation are supplied with the tank. Both cover and lid have large rubber knobs.

The tank is attractive yet solidly constructed of extra heavy moulded rubber, insuring long service. The material from which this tank is made is unaffected by even moderately high temperatures and of course, is acid and alkali proof.

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15	5 x 7	20	9x12cm.
20	4 x 5	20	3 1/4x4 1/4

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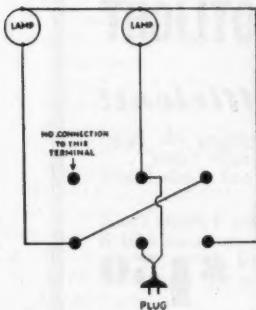
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Photoflood Dimmer

The life of photoflood lamps is greatly increased by a reduction in operating voltage. These lamps are most frequently used in pairs



Home-made series-parallel switch and wiring diagram. Any double-pole, double-throw switch may be used.

and this fact readily lends itself to the construction of a simple dimmer.

This dimmer places the two lamps in series for one position of a switch, and in parallel for a second position of the switch. In the series connection, each lamp receives only half of the line voltage and its life is greatly increased. This connection is used while setting up, placing the lights and focusing. The reduced lighting is more comfortable to the subject during these preliminaries and incidentally the power consumed is only one-fourth of that for full brilliancy.

The materials required for constructing this dimmer may be purchased at most radio parts mailorder houses for about \$1.50. The parts used are a sheet metal box of a standard size — 4"x4"x2", a double-pole, double-throw toggle switch, two plug receptacles, a rubber grommet to fit a one-half inch hole and a ten foot length of cord with a plug.

The switch is mounted centrally on the top face of the box in a one-half inch hole. The plug receptacles are of the type that mount in a 1 1/4" hole on a side face of the box. On the opposite side face of the box a one-half inch hole is drilled and the rubber grommet is placed in this hole to protect the line cord where it enters the box. The sheet metal box is of the type whose top and bottom faces are removable, so that assembly and wiring of the parts is readily accomplished.—A. C. DONOVAN.

Wide Angle Camera

This fixed-focus, wide-angle camera was made by building a box around a standard 8 x 10" plate back. The lens used is a B. & L. Zeiss Protar of 3 1/2" focal length obtained from a 5 x 7" camera.

The lens is permanently focused at 6 feet. At its maximum opening, f/18, the depth of focus is from 4 1/2 feet to 10 feet. At f/45 it is in sharp focus from 3 feet to infinity.

This type of camera is especially useful in tight places such as small rooms and always where a wide view is required and there is not



enough room to move the camera back far enough to take in all of the area or to get everything in sharp focus. The camera can be placed on a mantelpiece or against the wall. The viewfinder consists of three tacks in triangular form on the top of the camera. These tacks were placed after viewing a scene in the ground glass.

When there is not enough room to sight the camera from behind, it can be sighted from in front by looking along the two tacks, first along one angle and then along the other.

The covering power of this lens is almost enough for an 8 x 10" negative; 7 x 9" is covered with good definition.—Ralph Haburton.

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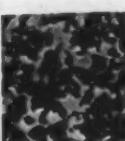
- Non-staining
- Non-toxic
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- Full shadow-detail
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Look at the Grain it Gives!

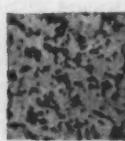
Edwal Thermo Fine produces finer grain than borax-type, finer grain than physical development and as fine as Edwal 12 at its best.

Each tube makes 1 quart of developer which can be used to develop 10 rolls of 35mm., 2 $\frac{1}{4}$ "x3 $\frac{1}{4}$ ", or 2 $\frac{1}{2}$ "x4 $\frac{1}{4}$ ". films. Get Edwal Thermo Fine Developer today. You will find it the simplest of all to use. All you need is Edwal Thermo Fine and a fixer. No short stop bath is necessary. No technical details, no replenishers, no mathematical complexities. Ask your dealer for a tube today! Circular sent on request.

These photomicrographs (700 diameters) show the grain structure produced on DuPont Superior 35mm. film, enlarged to 700 diameters.



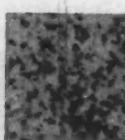
Borax Type
Developer



Edwal Thermo
Fine Tube
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Physical
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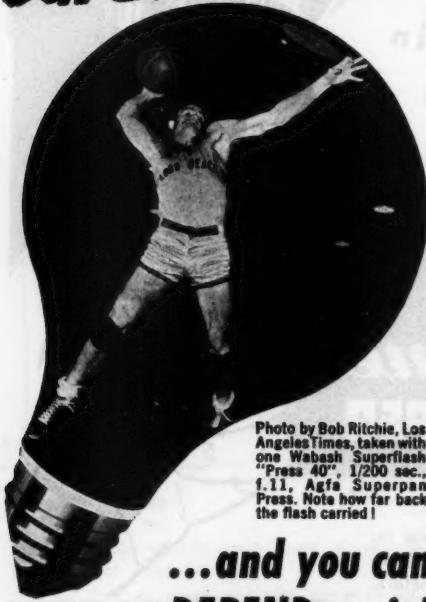


Photo by Bob Ritchie, Los Angeles Times, taken with one Wabash Superflash "Press 40", 1/200 sec., f.11, Agfa Superpan Press. Note how far back the flash carried!

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Simple...Safe...Sure—that's what flash shooting's like with Superflash! Simple—because Superflash's extra powerful, extra long-peak light flash, perfectly synchronized, uniform and controlled—makes it easy to get pictures "on the nose"...cuts down exposure errors.

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AND WABASH SUPERFLOOD PHOTOLAMPS**

Enlarging Timer

An efficient enlarging timer can be made from an ordinary pocket watch of the dollar variety. Remove the crystal, hour and minute hands. Glue a long, thin piece of balsa wood on top of the second hand so as to clear the dial and the winding stem. The second hand



The upper snapshot shows the front view and how the watch is wound by the aid of the slot for the winding stem.



The back view (center) shows how the cardboard is folded and glued to form the support. The tilted position of the dial makes it easy to read from a standing position.



The face of the enlarger clock (bottom) also is made of mounting board. After inscribing the circle, it is laid off in 40 equal divisions, just as a watch or clock.

extension is made of a piece of balsa, the size of the diameter of the circle to be described. Cut off one fourth of this length and glue it back upon itself. This is to act as a counterweight to make the clock run evenly both "up" and "down" the dial.

Glue the watch to the back side of the dial with collodion, over the circular hole, and then glue the thin piece of balsa in place on top of the second hand. Use as little glue as possible for this piece of balsa, as too much glue will stop the movement of the second hand.
—Jacques H. Upshaw.

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without Lens

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26 Shots In One

A problem to phase any photographer, was the picturing of this machine which is nearly a block long. Because of the limited size of the building it was not possible to get far enough away to photograph the machine with a lens of even the widest angle.

The photographer did not resort to tricks. He simply took 26 separate pictures and put the prints together so expertly that it was impossible to tell from the complete print that it had not been photographed on a single negative.

The problems were (1) lighting (2) perspective. The machine was lighted so that every negative would show shadows in the same direction. Normal perspective was obtained by moving the camera between exposures in the form of a curve, a concave arc with the closest part nearest the center of the picture. This produced the effect of normal perspective when the 26 prints from the 26 negatives were pasted together. In pasting,

the sections were allowed to overlap and then cut with a razor blade.

The machine is one of the longest ever built for paper making, being 284 feet long. The complete photograph was accepted by Hummel & Downing Co., Milwaukee, as the best photographic reproduction of their machine that they had been able to obtain. The company would have spared no expense if another way of taking the picture had been possible.—*John E. Hubel.*

Proper Washing of Prints

The problem in washing prints is not wholly one of removing the hypo from the emulsion, as it is in washing films. It is also one of cleaning hypo from the baryta base coating beneath the emulsion.

Agitation does not speed up the hypo removal from prints as it does with films. Soaking in frequent changes of water is almost as effective and swift. If a print washer is used, the prints should not be permitted to collect in bunches but should circulate sufficiently, so

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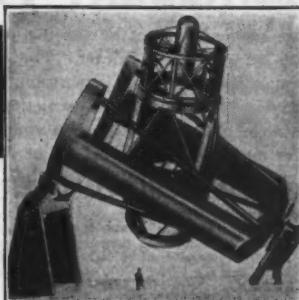
For maximum illumination and brighter, sharper images, the world's largest telescopes—*are of the reflecting type. Reflector telescopes gather many times more light and can be made many times more accurate than refractor telescopes.*

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Closing Date	Name of Salon	Number of Prints and Entry Fee	For Entry Blank, Write to
February 15	Fifth Annual National Salon, St. Petersburg Camera Club	4 \$1.00	Homer Agee, Salon Chairman, 105 Seventh St., So., St. Petersburg, Fla.
March 15	Third Salon of Photography, Camera Club of Fitchburg	4 \$0.50	Elsie L. Lowe, Secretary, Pearl Hill Rd., Fitchburg, Mass.
March 25	Second Annual Salon of Photography, Newport Camera Club	4 \$1.00	Secretary, Newport Camera Club, 41 Mary St., Newport, R. I.
April 1	First International Pictorial Roundup	4 \$1.00	Ben F. Marable, Business Mgr., Box 151, Cheyenne, Wyo.
April 8	1940 Baltimore International Salon of Photography	4 \$1.00	J. S. Rowan, Salon Secretary, 2315 Homewood Avenue, Baltimore, Md.
April 10	Seventh International Salon of Milwaukee	4 Prints, 6 Color Slides \$1.00	A. P. Bellinghausen, Salon Chairman, c/o Milwaukee Art Institute, 772 N. Jefferson St., Milwaukee, Wis.
April 15	New Jersey National Salon of Photography, 1940	4 \$1.00	Salon Committee, Orange Camera Club, 1 South Clinton St., East Orange, N. J.
April 17	First Toledo International Photographic Salon	4 \$1.00	Carl F. Reupsch, Salon Chairman, Toledo Museum of Art, Toledo, Ohio.

that they are constantly bathed with hypo-free water.

Don't overload your print washer by dumping in a whole evening's work at once. When you have a large number of prints the results will be more satisfactory if you wash only part of them at a time.

Double-weight paper retains hypo much longer than single-weight. Even under the most favorable conditions it's not safe to cut down the washing time to less than 30 minutes for single-weight paper or an hour for double-weight.

Don't mix unwashed prints, fresh from the hypo tray, with partially-washed prints. That adds fresh hypo to the water in the print washer and makes it necessary to start all over again and rewash all the prints for the full period.

If speed is important, washing time can be cut in half by use of a sodium carbonate solution. The acid in hypo retards the penetration of the water into the paper fibers, but if the acid is first neutralized the water can act more speedily.

Make up a 1 per cent solution by dissolving

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The keen enjoyment of turning out finest quality prints is yours with an ALBERT Printer. For quality results, trouble-free performance, economy of operation, Albert Printers are unequalled. They're way ahead in construction and appearance, too. There's a size or model best suited to your needs; feature for feature they offer more for your money. Let your dealer demonstrate.

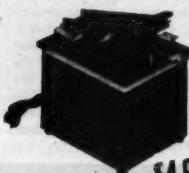
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All-metal construction. Takes all negatives to 4"x5". Adjustable masking bands. Dual purpose safelight. Many other modern features.



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Takes any negative from 35mm. to 5"x7". Special guides for uncut 35mm. film. Four black metal masking bands, etched with white border guide lines and numerals—three sockets—Hinged metal door for easy access to ground glass for dodging and quick bulb removal. Automatic switch. AC or DC. Safelight, cord and plug included. \$18.50 complete.

ALBERT

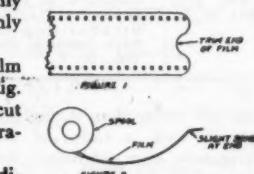
15 grains (1 gram) of anhydrous sodium carbonate in 34 oz. (1 liter) of water. Immerse prints a few at a time and for one minute only in this solution, then transfer them to the print washer. A stronger solution or a longer immersion may affect the whiteness of the paper.

With this method, 10 to 15 minutes of washing is sufficient for single-weight prints, 20 to 30 minutes for double-weight.—*Bruce Cole*.

35 mm. Developing Tanks

For successful developing of 35 mm. film in tanks, remember to:

1. Use the reel only when thoroughly dry.
2. Trim end of film as shown (Fig. 1). Do not cut through perforations.
3. Bend film in direction opposite to natural coil (Fig. 2).
4. Feed film from loaded spool to reel so that the natural coil of the film is unchanged.



—W. H. Knutz.

Write Articles To Sell Pix

While hunting for a print to go with an article already written one day, I ran onto all sorts of interesting but forgotten pictures. An idea struck me! Why not collect all the best pictures and write articles to fit them? Editors are picture-conscious, always demanding more and better photographs. Hadn't one recently informed me that it was useless to submit a manuscript without several Grade A illustrations?

In my usable collection was a group of waterfall pictures—pictures of large or unusual cataracts. The result was an article, "Waterfalls I Have Seen," which sold readily. Without the pix this piece would have been worthless.

Then I dug up some photographs of a pioneer parade of several years back. They showed pack burros laden with prospecting paraphernalia, covered wagons, painted Indians, etc.



These were also good for a salable article to a church publication for teen-age boys and girls. Pictures used for informative articles like this need not be new, such as spot news pictures, but must be of high quality.

Except for photos of a personal nature,

Great News for Serious Photographers

All Bee Bee Enlargers REDUCED!



THE Brooks organization is moving very soon to better but smaller quarters and simply will not have room to store its present stock of enlargers. To dispose of a large part of this valuable but bulky stock, prices have been reduced as much as 42% on some models. Your dealer will cooperate by showing you these famous enlargers or give you full details as to their construction and specifications as listed on pages 20 to 24 of the Burleigh Brooks catalogue. Here is brief listing of the four models, showing former and new prices:

Bee Bee MODEL III ENLARGER, for negatives 6½x9 cm. or smaller. Magnification about 6 diameters.* Completely equipped with 4½" f/4.5 anastigmat lens with diaphragm, 6x9 cm. metal mask, bulb and baseboard . . . formerly \$115.00, now only \$80.00

Bee Bee MODEL IV ENLARGER, for negatives 9x12 cm. or smaller. Magnification about 5 diameters. Complete with 5½" f/4.5 anastigmat lens with diaphragm, 9x12 metal mask, bulb and baseboard . . . formerly \$137.50, now only \$95.00

Bee Bee UNIVERSAL RAJAH "O" ENLARGER (shown above), for negatives 3x4 cm. and smaller, or sections of larger negatives. Magnification about 8 diameters on baseboard.* Complete with a 60 mm. Parastigmat f/4.5 special enlarging lens, click-locking diaphragm, single condenser, 75-watt bulb, two metal masks (3x4 cm., and 24x36 cm.), and baseboard . . . formerly \$32.50, now only \$32.50

Bee Bee RAJAFOX "O" AUTOFOCUS ENLARGER, for negatives 4x4 cm. and smaller, or sections of larger negatives. Keeps automatically in focus for any picture within its range of 2 to 9½ diameters. A beautifully constructed, easy-to-use instrument. Complete with 60 mm. Parastigmat f/4.5 lens with click-locking diaphragm double condenser, 75-watt bulb, cord, three metal masks (3x4 cm., 24x36 mm., and 4x4 cm.), baseboard and switch . . . formerly \$100.00, now only \$67.50

*Unlimited enlargement possible when housing is reversed.

If your dealer cannot supply you with full information, write:

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SALONS

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If speed is important, washing time can be cut in half by use of a sodium carbonate solution. The acid in hypo retards the penetration of the water into the paper fibers, but if the acid is first neutralized the water can act more speedily.

Make up a 1 per cent solution by dissolving

Fans! ALBERT PRINTERS Save

The keen enjoyment of turning out finest quality prints is yours with an ALBERT Printer. For quality results, trouble-free performance, economy of operation, Albert Printers are unequalled. They're way ahead in construction and appearance, too. There's a size or model best suited to your needs; feature for feature they offer more for your money. Let your dealer demonstrate.

ALBERT 4"x5" ALL-METAL PRINTER

Takes all film from 35mm. to 4"x5". Special film guides for uncut 35mm. film. Four steel masking bands. Hinged door for quick access to bulbs. Automatic off-on light control. Two sockets: one for white light, one for safelight. AC or DC. Attractive black enamel finish, nickel trim. Ruby bulb, cord and plug included. \$9.75 complete.



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VICEROY 4"x5" RAPID PRINTER

All-metal construction. Takes all negatives to 4"x5". Adjustable masking bands. Dual purpose safelight. Many other modern features.



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Full Facts

\$9.75



\$18.50

Albert De Luxe 5"x7" All-Metal Printer

Takes any negative from 35mm. to 5"x7". Special guides for uncut 35mm. film. Four black metal masking bands, etched with white border guide lines and numerals—three sockets—Hinged metal door for easy access to ground glass for dodging and quick bulb removal. Automatic switch. AC or DC. Safelight, cord and plug included. \$18.50 complete.

ALBERT

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1350 Canal Street, Chicago

15 grains (1 gram) of anhydrous sodium carbonate in 34 oz. (1 liter) of water. Immerse prints a few at a time and for one minute only in this solution, then transfer them to the print washer. A stronger solution or a longer immersion may affect the whiteness of the paper.

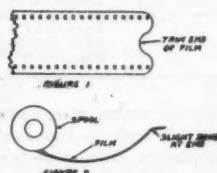
With this method, 10 to 15 minutes of washing is sufficient for single-weight prints, 20 to 30 minutes for double-weight.—Bruce Cole.

35 mm. Developing Tanks

For successful developing of 35 mm. film in tanks, remember to:

1. Use the reel only when thoroughly dry.
2. Trim end of film as shown (Fig. 1). Do not cut through perforations.
3. Bend film in direction opposite to natural coil (Fig. 2).
4. Feed film from loaded spool to reel so that the natural coil of the film is unchanged.

—W. H. Knutz.



Write Articles To Sell Pix

While hunting for a print to go with an article already written one day, I ran onto all sorts of interesting but forgotten pictures. An idea struck me! Why not collect all the best pictures and write articles to fit them? Editors are picture-conscious, always demanding more and better photographs. Hadn't one recently informed me that it was useless to submit a manuscript without several Grade A illustrations?

In my usable collection was a group of waterfall pictures—pictures of large or unusual cataracts. The result was an article, "Waterfalls I Have Seen," which sold readily. Without the pix this piece would have been worthless.

Then I dug up some photographs of a pioneer parade of several years back. They showed pack burros laden with prospecting paraphernalia, covered wagons, painted Indians, etc.



These were also good for a salable article to a church publication for teen-age boys and girls. Pictures used for informative articles like this need not be new, such as spot news pictures, but must be of high quality.

Except for photos of a personal nature,

Great News for Serious Photographers



All Bee Bee Enlargers REDUCED!

THE Brooks organization is moving very soon to better but smaller quarters and simply will not have room to store its present stock of enlargers. To dispose of a large part of this valuable but bulky stock, prices have been reduced as much as 42% on some models. Your dealer will cooperate by showing you these famous enlargers or give you full details as to their construction and specifications as listed on pages 20 to 24 of the Burleigh Brooks catalogue. Here is a brief listing of the four models, showing former and new prices:

Bee Bee MODEL III ENLARGER, for negatives 6½x9 cm. or smaller. Magnification about 6 diameters.* Completely equipped with 4½" f/4.5 anastigmat lens with diaphragm, 6x9 cm. metal mask, bulb and baseboard . . . formerly \$115.00, now only \$80.00

Bee Bee MODEL IV ENLARGER, for negatives 9x12 cm. or smaller. Magnification about 5 diameters. Complete with 5½" f/4.5 anastigmat lens with diaphragm, 9x12 metal mask, bulb and baseboard . . . formerly \$137.50, now only \$95.00

Bee Bee UNIVERSAL RAJAH "O" ENLARGER (shown above), for negatives 3x4 cm. and smaller, or sections of larger negatives. Magnification about 8 diameters on baseboard.* Complete with a 60 mm. Parastigmat f/4.5 special enlarging lens, click-locking diaphragm, single condenser, 75-watt bulb, two metal masks (3x4 cm. and 24x36 mm.) and baseboard . . . formerly \$52.50, now only \$32.50

Bee Bee RAJAFIX "O" AUTOFOCUS ENLARGER, for negatives 4x6 cm. and smaller, or sections of larger negatives. Keeps automatically in focus for any picture within its range of 2 to 9½ diameters. A beautifully constructed, easy-to-use instrument. Complete with 60 mm. Parastigmat f/4.5 lens with click-locking diaphragm double condenser, 75-watt bulb, cord, three metal masks (3x4 cm., 24x36 mm., and 4x6 cm.), baseboard and switch . . . formerly \$100.00, now only \$67.50

*Unlimited enlargement possible when housing is reversed.

If your dealer cannot supply you with full information, write:

BURLEIGH BROOKS
INCORPORATED
127 WEST 42nd STREET NEW YORK

CONTEST CALENDAR

Open to	Subjects	Prizes	For copy of rules, write to	Contest closes
Anyone	"Key Pictures"	First Prize, \$100; second, \$25; third, \$15; twelve prizes of \$5 each. \$5 for each photo accepted.	See page 31 of this issue.	April 1
Anyone	Any subject illuminated by pocket flashlight, in whole or in part.	In each section: First, \$40; 2nd, \$10.	J. M. Mathes, Inc., 122 East 42nd St., New York City.	
Anyone	Two sections: Pictorial and news pictures. (Third Annual Photography Competition.)	Five new Packard cars, \$3,600 in cash, and 150 awards of merit.	A. Clarence Smith, Asso. Prof. of Journalism, Kent State University, Kent, Ohio.	Feb. 15 (Entry fee, \$1.00 minimum.)
All amateur photographers	1940 Packard cars, in any setting.	First prize, \$25; second, \$15; third, \$10; twenty-five prizes of \$1 each.	Local Packard dealer, or: Contest Dept., Packard Motor Car Co., Detroit, Mich.	March 15
All amateur photographers	Production, marketing or consumption of eggs and poultry.	Monthly: \$100, \$50, \$25, and twenty prizes of \$5 each.	American Poultry Journal, 336 So. Clark St., Chicago, Ill.	April 30
Anyone in the United States (except NBC employees and their families)	Pictures describing or symbolizing programs heard over the NBC-Blue Network.	"Adventures in Photography," National Broadcasting Co., RCA Building, Radio City, N. Y.	Monthly.	

friends, etc., I sold almost everything I had. Go through your pile of pictures, sort out the ones around which articles can be written, sit down to your typewriter and begin to cash in. Keep the pix before you while you write "around" them. They will keep the scene fresh in your mind and suggest numerous angles.

Several pictures showing different phases of one subject or the progress of some undertak-

ing sell easier than a single picture. For example, I took a series of pictures of a giant irrigation dam, showing the work at various stages. An article chronicling the project from beginning to end, accompanied by the pictures, brought a quick check.

Try, at first, to sell the small magazines. The lesser publications do not pay much, but they use a great deal of material.—H. H. Graham.

Use a *SOLAR* for the finest detail!

The finest detail in your negative may form the most beautiful portion of your print when you enlarge with a Solar. Note the illustration—the minute size of the original as shown above—the wealth of detail as shown below. Solar Enlargers with their perfected light and optical systems, can be depended upon to give you all the detail that exists in your negative.

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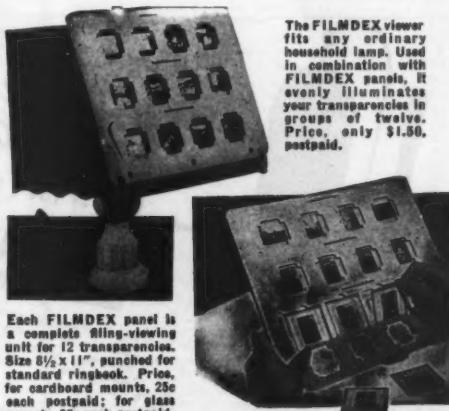
SEE THESE PHOTO EXHIBITS THIS MONTH

City	Street Address	Dates Open	Name of Exhibition
Boston, Mass.	New England Museum of Nat'l History, 234 Berkeley St.	February 1 to 15	1st Annual Boston International Salon of Nature Photography
Brooklyn, N. Y.	Brooklyn Institute, Academy of Music, 30 Lafayette Ave.	February 1 to 28 10 a. m. to 10 p. m.; not open Sundays	One Man Show by Walter E. Owen
Brooklyn, N. Y.	Brooklyn Institute, Dept. of Photography, 30 Lafayette Ave.	February 8	Make-up demonstration for panchromatic and color photography
Brooklyn, N. Y.	Brooklyn Institute, Dept. of Photography, 30 Lafayette Ave.	February 29	"A Trip to South America," illustrated with Kodachrome slides
Gary, Ind.	Central Public Library	February 1 to 17; 9 a. m. to 9 p. m.; Sundays, 2 to 6 p. m.	Leonard Misonne Exhibit, 50 prints
Madison, Wis.	Memorial Union, 770 Langdon St.	February 18 to March 3 8 a. m. to 11 p. m.	Seventh National Collegiate Salon of Pictorial Photography
New York City	American Museum of Natural History (Education Hall)	February 17 to 25; 10 a. m. to 5 p. m.	Third Scholastic Salon of Photography
Phoenix, Ariz.	Hotel Adams, Mezzanine	February 1 to 28; 1 to 10 p. m.	Second Valley of the Sun Photographic Salon
Richmond, Va.	Virginia Museum of Fine Arts	February 18 to March 5; 9:30 a. m. to 5 p. m.	Fourth Virginia Photographic Salon
Rochester, N. Y.	Memorial Art Gallery	Jan. 15 to Feb. 25; 10 a. m. to 6 p. m.; Sunday, 2 to 5 p. m.	Fifth Rochester International Salon
San Francisco, Calif.	MH. De Young Memorial Museum, Golden Gate Park	February 15 to March 1	23rd Annual International Salon
Wilmington, Del.	Delaware Art Center	February 5 to 25; 10 a. m. to 5 p. m.; Sundays, 2 to 6 p. m.	Seventh Wilmington International Salon



Do your friends yawn while you shuffle through the table drawer to find those color transparencies you shot at the World's Fair last summer? It's easy to organize your collection with FILMDEX and it costs so little! FILMDEX panels take 2 x 2-inch slides of both 35mm. and Bantam size film. Two types—one for cardboard mounts, one for glass mounts. Visible, convenient, compact, FILMDEX protects transparencies against dust, scratches and finger prints. Let's get organized today, the FILMDEX way!

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2 1/4 x 3 1/4 ENLARGER

Interchangeable lenses, two 4 1/2" removable condensers and opal glass. Geared trolley accurate focusing unit. Spring grip cast aluminum arm. Fraction of an inch post adjustment. Adjustable mask, takes negative from 2 1/4" x 3 1/4" down. No. 211 opal enlarging bulb. Thru draft cooling ventilation. Baseboard size, 18" x 24".

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Gunning for Pictures

(Continued from page 48)

Eastman Kodak store in the heart of the city. Shells at the time were falling all over. The company's laboratory was on the first floor of a building about a hundred yards from the store. There he developed and fixed his film, then placed it in a large pan to wash. He stepped outside and walked toward the store. Suddenly there was an explosion. A shell had hit the building in which the laboratory was located. He ran back to find the darkroom a shambles, but in the corner of the room he found the pan with the film intact. He returned to his car. It was a mass of ruins. A large shell fragment had ripped it apart. Bryan walked back to the Embassy, marvelling at his narrow escape.

Taking pictures was not his only occupation. With all communications cut off, the fate of those Americans left to carry on the Embassy work was in doubt. Bryan went to the broadcasting station which heroically functioned in spite of bomb and shell and announced by shortwave to England, and then to America, the names of those who were still safe and sound.

On the 21st of September, a "two-hour armistice" was declared, and in Polish trucks, Bryan, with 1,300 citizens of 30-odd countries, were evacuated to German lines. They were received kindly by Nazi officers and troops, while all the attention given the refugees was duly recorded for the Propaganda Bureau by a half dozen official photographers. They were taken by truck and train to Königsberg. From there Julian Bryan went to Stockholm, where he boarded a boat for the United States, arriving in New York October 7.

How Bryan was able to get his pictures out of Germany is still a mystery. The doughty cameraman refuses to broach the subject. At any rate, they're here, safe in his possession. Thanks are due to his courage and resourcefulness for the first splendid batch of uncensored war pictures that should rank among the finest documentary records of the current world war.

February Finds for Photographic Fans

Rollisord II, Zeiss Triotar F3.5.....	\$ 63.00
Rollisord Ia, Zeiss Triotar F4.5.....	47.50
Dollina II, Schneider Xenon F2.8.....	44.50
Dollina II, Schneider Radionar F2.9.....	37.50
Kodak Recour 18, Kodak Anast. F4.5.....	34.50
Kodak Recour 33, Kodak Anast. F4.5.....	45.00
Super Kodak 620, Kodak Anast. F3.5.....	167.50
New Contax II, with like new Sonnar F2.....	182.50
New Contax III, with like new Sonnar F1.5.....	212.50
Korelli II, Schneider Radionar F2, new.....	84.50
Korelli II, Zeiss Tessar F2.8, new.....	109.50
New Leica IIBB, with like new Summar F2.....	150.00
Leica G, with Summar F2, ev. case.....	115.00
Robot II, with Carl Zeiss Tessar F2.8.....	126.00
Robot II, with Carl Zeiss Tessar F3.5.....	115.00
Kine Exakta, with Zeiss Biotar F2.....	189.50
Kine Exakta, with Exaktar F3.5, new.....	97.50
Automatic Rolleiflex, Zeiss Tessar F3.5.....	110.00
National Graflex, Series II, B&L F3.5.....	54.50
Bantam Special, Ektar F2, ev. case.....	54.50
Contaflex, Sonnar F1.5, already ready.....	189.50
Contaflex, Sonnar F2, already ready.....	149.50
Zeiss Sonnar F2.8 lens, 18cm. Refit attach. and case.....	324.50
Zeiss Super Ikonta B, Tessar F2.8.....	105.00
Contaflex for Super Ikonta B.....	48.00
Speed Graphic 3 1/4x3 1/4, Zeiss Tessar F4.5.....	89.50
Speed Graphic, 3 1/4x4 1/4, Zeiss Tessar F4.5, new.....	95.00
Speed Graphic, 4x5, Zeiss Tessar F4.5, new.....	94.00
Kodak Model 35, Kodak Anast. F3.5.....	24.95
Kodak Model 35, Kodak Anast. F4.5.....	17.95
Robot I, Carl Zeiss Tessar F2.8, ev. case.....	69.50
Robot I, Carl Zeiss Tessar F3.5, ev. case.....	59.50
Argus C2, F3.5 coupled rangefinder.....	18.50
Perfex 44, F2.8 coupled rangefinder.....	36.00
Contax III, Sonnar F2 lens, ev. case.....	164.50
Contax II, Sonnar F1.5, ev. case.....	159.50
Contax II, Sonnar F1.5 ev. case.....	164.50
Western Master Exposure meter.....	18.50
S.S. Photrix exposure meter.....	14.50
Mini Electric exposure meter.....	9.95
Kine Exakta, Prinzipia, F1.9, new.....	157.50
Exakta B, Zeiss Tessar F3.5, new.....	97.50
Exakta B, Zeiss Tessar F2.8, new.....	112.50
Korelli I, Radionar F2.9, new.....	63.50
Korelli I, Zeiss Tessar F2.8, new.....	86.00
Simmon Omega B to 2 1/4x3 1/4, no lens, new.....	45.00
Simmon Omega B to 2 1/4x2 1/4, no lens, used.....	32.50
Super Multifax, Renar F4.5, to 2 1/4x3 1/4.....	54.50
Leitz Valey Enlarger, 35mm. only, no lens.....	37.50
Leitz Fotomat I, no lens, 35mm.....	54.50
Solar Enlarger to 2 1/4x3 1/4, Wollensak F4.5.....	32.50
Praxidex 4x4cm., F4.5 lens.....	22.50
Exakt Enlarger, 2 1/4x2 1/4, F4.5.....	69.50
Vidom Universal Finder.....	22.50
Bolex H, 16mm., Leitz Hektor F1.4.....	210.00
Bolex H, 8mm., Meyer Kine Plastat F1.5.....	195.00
Kodak Precision Enlarger to 2 1/4x3 1/4, no lens, new.....	67.50
Simmon Super Omega B, no lens, to 2 1/4x2 1/4, new.....	69.75
New 8mm. Kodascope 70, 500 watt (lens bulb), new.....	67.50
Kodascope Model G, 750 watt, F1.6.....	96.50
Cine Kodak Magazine, 16mm., F1.9.....	84.50
Kine Kodak, Model 60, F1.9.....	49.50
Kodaslide II, 5" lens, slide projector.....	26.75
Keystone A-81, 750 watt projector, F1.6.....	52.50
16mm. Kodascope, Model 8, 750 watt, F1.6.....	98.50
Keystone A-7, 16mm., F2.7, seven speeds.....	50.00
8mm. Keystone K-8, F1.9 Anast.....	40.00
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16 WARREN ST. NEW YORK

Easy Direct Copying

(Continued from page 62)

of a negative. Second, dry development—no liquids touch the prints, consequently, they are true-to-scale.

Third, tracings and drawings can be duplicated on transparent paper or cloth in a few minutes by two simple steps—exposure and dry development.

Fourth, no washing or drying is necessary.

Commercial office equipment is manufactured for the use of this process, but anyone can experiment with Ozalid paper and develop copy prints with ammonia fumes in a tin can.

A conventional printing frame of sufficient size is used to hold the diazo paper and the transparency to be reproduced. Although an arc or photoflood light can be employed for printing, you will find daylight generally sufficient. The time of exposure varies with the light strength and density of the transparency. Several minutes usually are required on cloudy days; one or two in brilliant sunlight. The print can be examined from time to time, to see how the exposure is progressing. Underexposed and undeveloped diazo paper has a yellowish coating. As the light acts on this, it bleaches it white. When there is no trace of yellowishness in the areas that are to reproduce white, exposure is complete.

For developing, the amateur needs little more than a gas-tight container large enough to hold the paper sheet.

A simple arrangement consists of a large can with tight-fitting lid, such as a 5-lb. sodium sulphite or carbonate container, with a small glass tumbler or beaker containing a piece of sponge, on the bottom. The beaker can be anchored so it won't shift around.

Pour a tablespoon of 28% liquid ammonia (solution of ammonia gas in water) over the sponge, and you are ready to develop. For small pieces of paper, it is convenient to have a circular piece of

F.R. HI-SPOT
HOLLYWOOD TYPE SPOTLIGHT

Equipped with Fresnel lens, constructed of die cast aluminum, giving punchy illumination with a soft edge beam, finger tip focusing from a large to a small spot, and many other distinctive features make this F.R. Hi-Spot invaluable to the user seeking the ultimate in the camera modeling and natural color work. A miniature of the giant and baby Hollywood wood spotlights, the F.R. Hi-Spot though small in size (6½" over all) packs a "terrific wallop." Though modest in price it is comparable to other lights selling many times higher.

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screen wire over the beaker. Larger sheets can be handled by removing the screen and bending them around the inside circumference of the can. If the lid is tight-fitting, ammonia fumes strong enough for development will remain in the can for several days. After the paper has been exposed, simply place it in the can and replace the lid quickly. In a few minutes development will be complete. There is no danger of overdeveloping. Keep the lid on as much as possible.

Diazo paper can be employed for cameraless copying in the manner described for bromide paper at the beginning of this article. When it is used for making copies of typewritten matter, cleaner copies will result if the typing has been done with the aid of a special clean-printing ribbon marketed specifically for that purpose.

Dramatize Picture Personality

(Continued from page 27)

talking about one of their pet hobbies.

Now, the important thing to remember is just what brought about this "let-go" of the subject's personality. What was it that stimulated this interesting expression or mood which you in turn want to record in a photograph? What was he talking about . . . or what was he thinking about?

When you actually come to the taking of the picture, it is up to you to re-introduce these ideas or thoughts which you have noticed will bring out the expression that you have decided will make an interesting picture.

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Your 16 exp. rolls ("split" 120 or 127) fine-grain film developed and enlarged to 4x6. "Split" 120 film (12 exp.) enlarged to 4x6, only 75¢. Bantams, or other cameras, using No. 210 film, also developed and enlarged to 4x6 enlargements. Order from this ad TODAY or write for FREE print and FREE folder giving secret of shooting better pictures. IN TODAY-OUT TO SUPERLABS, BOX 27-M, ELROY, WIS.

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- 3x4½ Rambler; like new \$16.75
- Sole Leather Carrying Case \$2.50
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- Walter Perle; with Steinheil Cassar F:2.9 lens; Compur shutter; like new \$25.00
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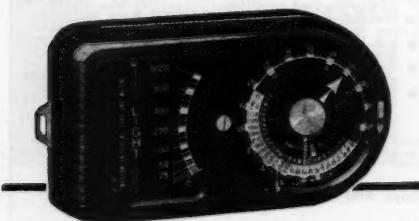
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New Developer Mixing Methods

(Continued from page 36)

the carbonate is added rapidly to the other ingredients already in the bottle.

Care must be exercised in bringing the carbonate solution and the previously mixed solutions together to prevent spattering the sides of the bottle with drops of the carbonate solution. Should such spattering occur, a drop of the carbonate accelerator will blend with the film or drop of the other mixture at the point where they come together. The result will be a rapid oxidation of the developers and the start of discoloration and staining, which may spread to the rest of the developer mixture. In this case we have started oxidation of the elon and hydroquinone which may progress to spoil the developer.

The success of this procedure for long-keeping developers depends upon avoiding oxidation of the developers by the air until the stock solution we are making is diluted and in use on film or paper. If care has been exercised up to this point and the carbonate solution has been added to the other ingredients in the bottle without spattering, the bottle and its contents are now to be shaken vigorously and the completed developer stock solution should be clear. Cold water may then be added to bring the volume of the stock solution up to the specified volume.

If any darkening is observed or present when the carbonate was added to water, that is an indication that the containers have not been thoroughly washed. The darkening is due to the presence of traces of other chemicals and the darkening may spread to the whole developer mix.

The theory behind this mixing procedure is to get all of the ingredients—developers (elon and hydroquinone), preservative (sulphite), restrainer (bromide), and energizer or accelerator (carbonate)—into one solution without permitting oxidation of the developers to start while they are being mixed. When they have

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been successfully mixed without permitting oxidation to start, the sulphite continues to preserve the developers from oxidation. The sulphite has a great affinity for oxygen, so it takes from the air what oxygen is present, thus keeping it away from the developers. [Sodium sulphite (Na_2SO_3) takes oxygen from the air and becomes sodium sulphate (Na_2SO_4).

It has been found by experience that if oxidation of the developers is not permitted to start in the mixing procedure, the protection of the sulphite is sufficient to keep the stock solution clear over a period of several months. For the same reason that we use clean utensils, avoid spattering and add the accelerator solution to our mixture last, we must not endanger its stability by returning used developer to the stock solution bottle. It is not suggested that developer mixed by this procedure be unnecessarily exposed to air because when the concentration of sulphite has been reduced, by part of it turning to sulphate, the protection of the elon and hydroquinone against oxidation is reduced and discoloration and staining can then make headway.

Some Camera A B C's

(Continued from page 55)

other than the movement required for focusing. View-cameras and many film-pack cameras, however, have a variety of other adjustments, including:

Rising front: the lens can be moved up and down.

Sliding front: the lens can be moved from side to side.

Swinging front: the lens is pivoted, so that it can be tilted up, down, or sideways.

Swinging back: the back of the camera, containing the film, can be swung around vertical and horizontal axes.

Double or triple extension: the camera has a very long bellows and a bed which can be racked out to two or three times the focal length of the lens, in order to focus on very near objects.

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Shooting Stars

(Continued from page 59)

He never works by any set schedule of rules in arranging lights or poses.

How, you may ask, does this photographer of radio big names manage to obtain striking, artistic portraits when he has to have needle-sharp definition, and often uses conventional lighting? The answer is —composition.

Composition is the arranging of the subject in the picture area in a manner that is pleasing to the eye. There are a lot of rules for doing this, but Jackson thinks that it is something that is inherent in the photographer's mind. A sense of composition can, however, be strengthened by proper action, he believes. It is for this reason that he makes a habit of visiting art exhibits, and absorbing artistic ideas wherever else possible.

Men who pose for Jackson's camera seldom employ facial make-up, but three-fourths of the women do. From a photographic standpoint, it makes little difference whether or not make-up is used, although proper preparation of the face will reduce the amount of retouching required. Standard panchromatic make-up, which is on the orange-red side, is employed. There are available the services of two or three make-up experts who can work on the stars. Probably the biggest advantage of using make-up on women, Jackson believes, is its psychological effect. It makes them feel that they are looking their best; and when they feel that way, they pose with greater ease. In cases where make-up fails to make the subject a ravishing beauty, tasteful clothes often help.

The shooting of fashion portraits is an important branch of the N. B. C. photo studio's work. Dress designers and manufacturers provide advance models of dresses, coats, hats, etc., and Jackson photographs these on radio artists. Often much time is consumed in arranging a dress, checking it to see that every seam is in place, dressing the model's hair, and

applying make-up. Such fashion pictures are sent all over the country so they may appear in newspapers and magazines at the same time the clothing is placed on sale. Thus Milady in Keokuk sees her favorite blues singer wearing that new dress that appeared in the downtown store window this afternoon. She rushes down to buy it; and that evening remembers to tune in and hear the singer extol the beauty of love and Blank's hand lotion. Thus are the dress designer, radio star, and the customer in Keokuk made simultaneously happy.

Portraits and fashion pictures are not the only kind of photographs made in connection with the job of informing the world of the activities of radio performers. Ceremonies and other events in which radio stars take part are covered by N. B. C. news photographers.

When television first became of photographic importance, the photographers tried working off the television screen. They found that photographing the image was unsatisfactory, and now they make their pictures by shooting the performers while they are on the stage. The panchromatic make-up used before the television cameras ties in perfectly with the making of performance pictures on panchromatic film.

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What Is Color?

(Continued from page 35)

yellow is the brightest color, orange and green are in the third position and violet is at the bottom or darkest point. Now look at the chart of values. I have used only seven tints or shades for convenience. The number of tints is only limited, however, by the ability of the eyes to differentiate one from another. Taking the three secondary colors, I have placed them in their proper position in the scale, orange and green in the third squares from the top and the violet in the seventh. To bring orange and green down to the value of violet, black has been added, while to bring violet up to the value of orange and green it has been necessary to add white. White has also been added to the orange and green to make the tones above those two colors. Whenever white is added to a color the resulting color is termed a *tint*; when black is added *shades* of the color are produced.

Intensity of a color is the measure of its brilliancy or purity. A color is at its fullest intensity when it has not been mixed with a neutralizing agent. The colors in the color wheel are at their fullest intensity. To reduce their intensity add their complementary colors; this results in a graying of the colors until they finally become neutral. The intensity chart, page 2, shows a neutralization of the primary and secondary colors in three steps. In the middle rectangles of color is the gray produced by a mixture of black and white. Color intensity is of importance in composition.

When we have learned to combine colors to produce pleasing harmonies we have taken a long step toward success. Some persons possess a natural ability to group colors which produce a harmonious whole. This ability is spoken of as "color sense." The most pleasing harmonies are seldom produced by groupings of raw colors but rather by combining colors in their proper values and intensities. For convenience color harmonies are classified

as *Monochromatic*, *Analogous*, *Complementary*, *Triads*, and *Double Complementary*.

The word monochrome means one color. By varying the values of blue, for example, as well as its intensities, it is possible to produce a pleasing harmony. Suppose we desire a still life in a monochromatic harmony. We select an orange vase. By selecting the different values of orange and also the different intensities of orange as shown upon the value and intensity charts, we may produce a very pleasing picture using a single color. The harmony in such a picture would be *monochromatic*. Another harmony is produced by selecting neighboring or related colors. Again examining our color wheel, we find three color families, the orange, the green and the violet. Using the illustration in the preceding paragraph of the orange vase, we may produce an analogous harmony by using yellow or red—the components of orange. We should not, however, use both of the primaries at the same time, since neither red nor yellow are related. A model in a beautiful green gown may be photographed using the proper values of blue or yellow and the result is a harmony by analogy.

In producing a *complementary* harmony the hues or colors that fall directly opposite upon the color wheel are used. Unless proper values and intensities of these colors are used, such a harmony would be apt to offend because of the rawness of the colors.

A *triad* harmony is one using three colors. Not any three colors, but definitely placed colors in the color wheel. If an equilateral triangle of a size to fit within the inner circle of the outer colors of the wheel is laid on the color chart, its three points will rest upon three colors or hues. These may be used in their proper values and intensities to produce a triad harmony. If one point rests upon yellow-orange, the second will point to blue-green and the third to red-violet.

The *double complementary* harmony is a combination of two complementary har-



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monies, e. g., red and green, and blue and orange.

Black, gray and white may be used with any single color or color harmony, helping materially in holding the colors together in a harmonious ensemble. If raw colors must be employed, a considerable amount of gray and neutralized colors of the same hue should be used. I have several times referred to the importance of using different values and intensities of the colors. Where large areas of a given color must dominate the picture, the intensity of this dominant color should be reduced. The contrary holds true where small areas of a definite color are used. Important objects may possess a greater color intensity than subordinate objects.

To be truly successful, we must understand something of the psychology of color. The mental effect of colors is well recognized today and extensive studies are being made of the subject. We all know that to some red is an irritating color, while blues and greens are restful. The blues and greens suggest coolness; the reds, oranges and yellows suggest warmth. The blues and violets seem to recede, while the reds and yellows appear to advance (Sections 4 & 5 on Color Chart). Again, we associate colors with various phases of our existence. Blue is associated with coldness and ice; purple with pomp and ceremony; yellow with light and gaiety; green with coolness and comfort; gray suggests solidity and black, mourning.

The effect of the juxtaposition of colors must be thoroughly understood by the color photographer. Unlike colors, when placed next to each other, are modified in apparent hue. They seem to be tinged with the complement of each other. If red is placed next to green, the red will appear redder and the green greener. When used in full intensity the combination will be too raw and shocking. Complementary colors should rarely be used next to each other unless they are grayed or are combined with sufficient neutral color to produce a harmony. When gray is surrounded by a pure color it appears

to be tinged with the complement of the color—e. g., surrounded by red, the gray becomes a greenish-gray. Shadows, which appear to the untrained eye as neutral gray or black, actually take on the complementaries of the adjacent colors. The color photographer will find that colors often "bleed" into each other or otherwise are changed by adjacent colors.

Next month, Mr. Pepper will cover practical applications of color theory in taking pictures with Dufaycolor and Kodachrome color film.—Ed.

Six Rules for Picture Success

(Continued from page 19)

given a one-negative picture.

In developing your films, strive for perfect development. An underdeveloped negative can be compensated with a contrastier paper. But in the process you lose the sparkle of detail and the contrast of values in the blacks and in the whites that distinguish perfection.

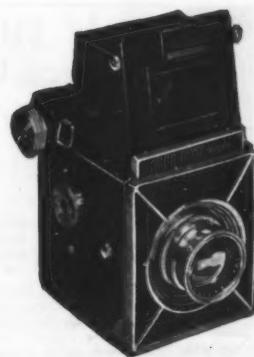
Strive for perfect cleanliness. Dust in the camera that settles on the film will mean a marred negative. Developer that is too cold, or too warm, causes guesswork, and good photography even today is a matter of time and temperatures.

Strive for the perfect print. Do not be happy until you produce a print that rings a loud bell inside of you and convinces you unmistakably that you have achieved perfection.

Strive for perfection in everything you do. The perfectionists get the most enjoyment out of photography, the best pictures and the most pride in their accomplishments.

We have covered six principles that lead to success in photography. This does not mean that there are not others. However, if you will follow these six you will stand a good chance of mastering the others as well. Above everything, do not become discouraged if you do not make masterpieces the first time you use your camera. Be patient. Time will help you prepare a technical foundation that will support a sound photographic structure.

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Using Spots

(Continued from page 63)

spring-balanced and can be set at any height with very little effort. It is also equipped with a special low bracket, permitting it to be lowered within a few inches of the floor.

To produce portraits with modelling it is usually necessary to use some form of auxiliary lighting with fluorescent units. The first attempt to use ordinary spotlights as fillers resulted in burning up the value of the fluorescent light. Care should be exercised in using high-wattage units, no matter how heavily diffused, as they tend to take away the softness which distinguishes portraits made with fluorescent lighting alone.

After experimenting with various lights, it has been found that the Dinky Inkie 100-150-watt incandescent spotlight makes an excellent filler. It is so small that it can be placed near the subject, while the quality and intensity of the light is so easily controlled by the instant focusing device that it is, in effect, a "brush" light suitable for wiping away shadows, and for modelling and brightening skin and hair texture without changing the effect of the fluorescent light which is used as the key or chief light source.

Behind the Newscamera

(Continued from page 74)

be left there. A revenue cutter assigned to meet the cruiser was filled to the gunwales with reporters and photographers. Every syndicate and many of the newspapers had their own tugs.

Looming large in the minds of the picture editors were the dramatic scenes of the Columbus burning, lifeboats pulling away—the meat and sinew of a great picture story. Reporters who spoke German accompanied the cameramen. Thus when the Tuscaloosa first hove into view through a misty rain, the first words sung out from the tugs were: "Bilder! Bilder! Photographic! Kaufen!" Guttural voices were hurled back from the jammed rails of the Tuscaloosa. "Ja! Ja. Wir haben!" The crew had photographs and were willing to sell them! At Ellis Island where the crew debarked, the photographers, reporters, and the syndicate representatives waded into the Columbus' crew

and bought up everything in sight. It made no difference whether the rolls of film might have been under or over exposed or even unexposed. It was all a wild, gambling chance to buy what might turn out to be prize pictures.

Anxious moments were spent in the offices of one large syndicate when the amateur films were rushed to a darkroom-man to develop. His face was white when he emerged with the first developed roll of film—nothing on it! Groans, almost sobs from the editors. A few minutes later the darkroom employee flung out the second dripping roll of film. The editor grabbed it and hurried to the light to scan the results—and more groans. Three exposures, but unsharp, moved, practically worthless.

Groans soon gave way to cheers when the last roll came from the darkroom—nearly every shot a beauty. There were the lifeboats on the waves, closeups, long shots, there was the awe-inspiring shot of the giant German liner spouting smoke and flames. Eureka! Many of the other syndicates and newspapers were less fortunate.

The German crew members were not the only ones to sell their snapshots. Aboard the *Tuscaloosa*, W. P. Burkhardt, fireman, disposed of four rolls of film to one of the large agencies. Most of his pictures were perfect. Burkhardt, an experienced cameraman, using a Korelle-Reflex, made shot after shot as the first wisps of smoke rolled upward from the Columbus following the appearance of the British destroyer on the horizon, the crowded lifeboats dotting the waves, then the Germans being hauled aboard the American warship. Only his last few shots were bad as the last members of the Columbus' crew were brought up in the fading light of late afternoon.

Burkhardt later told one of the syndicate editors that he always keeps himself prepared for such possible eventualities by having his camera loaded with fresh film and close at hand.

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"PICTURE EDITORS WANTED"

Next month in MINICAM, Alexander King, editorial associate of *Life* magazine, will describe the opportunities opened up by modern pictorial journalism, for men and women who understand pictures. Watch for the article, "Picture Editors Wanted".

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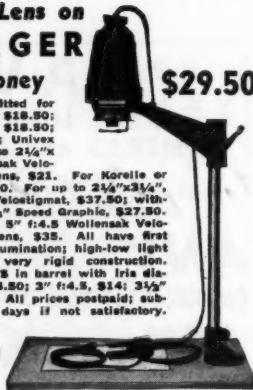
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Sell the Small Fry

(Continued from page 50)

pictures, but unless they add up to a news feature they will gain you nothing more valuable than a reputation as a nuisance. If your dog, by his persistent barking, saves a roomful of kids from burning to death in a school fire, then certainly it is time to haul out your camera and start shooting.

Newspaper features can be made. Staff photographers, in their routine search for human interest shots, have made a science of this, and a fairly large proportion of the halftones in your newspaper originated in such a manner. An example of this was the shot appearing in many papers of a group of college girls peeling off their silk stockings. The cutlines explained that they had decided to boycott Japanese silk and wear cotton because of the Chinese-Japanese war. It's dollars to doughnuts the photographer cooked up the story and suggested it to the girls, who, like most girls, were not averse to a little publicity.

Too many amateur prints show the subject standing woodenly with an embarrassed smirk on his face. This is not so good for your batting average. If your model is the champion corn husker of Giles County, portray him husking corn, and if he is a swimming wizard, show him in the water. Avoid as a plague the appearance of posing. I have violated this cardinal rule a great many times, and it hasn't brightened my morning mail a bit. Novel distortion and angle shots are acceptable if they are good. Try to add something striking or unusual to your composition. You won't always be able to do so, but it will help your sales to try.

Newspapers, as you probably know, deal in superlatives. "The largest," "the smallest" and "the only" are phrases which will serve you faithfully. On a farm near my home recently a cow shocked everybody for miles around by giving birth to five calves in one wholesale blessed event. I questioned veterinarians and was told that it was the first time they had heard of such a thing. The pictures sold readily.

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They were right down newspaper alley, because it was the first bovine quintuplet birth on record.

I use an Argus and a Graflex with an f/4.5 lens, but any camera capable of turning out sharply defined 8x10 prints will serve. Many newspapers will accept smaller prints if the story is worthwhile, although it is not wise to submit anything under 5x7.

Newspapers want brilliant, glossy prints with plenty of contrast. I use Eastman Super Sensitive Panchromatic and Panatomic film and develop it 15 minutes in D-76. Most of my prints are made on News Bromide, developed in a one-to-four solution of D-72.

A final word about the preparation of copy to accompany your photographs. It is imperative that your copy be cleanly typewritten, and never, never write on both sides of the paper. It is good practice to pencil your name and address lightly on the back of each print and to attach your captions. Identify clearly all persons and things shown in the picture. Newspapers often receive pictures and copy gratis. For this reason, it is well to type "submitted at regular rates" at the top of the first page of your manuscript and also to pencil this on the back of the prints. Then if your pictures are published you can be certain that you will be paid for them.

For the results of a survey of newspaper markets for the amateur photographer see the March issue of MINICAM magazine.

Machine Gun Camera

(Continued from page 75)

apertures which took the place of the bullet chambers in an ordinary gun. The photographer placed a sensitized plate behind these apertures, and performing an operation analogous to cocking, he set his camera. When he saw a bird flying, he took aim, pulled the trigger, and the chamber revolved once. In one second he made twelve pictures of the bird in various positions.



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Index to MINICAM

An index covering MINICAM Magazine, Volume 2, September, 1938, through August, 1939, is available at ten cents the copy; or free with a \$2.50 one year subscription or renewal.

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Photography TRADE NEWS

Price Reduction on Agfa Film

Prices on Agfa Triple S Pan and Superpan Press cut films are now reduced to those of Agfa Superpan Portrait, SS Pan and other Agfa Panchromatic films. With this price reduction, it now becomes possible for photographers to obtain these two high-speed films at regular Panchromatic film prices.

Anniversary Speed Graphics

The Folmer Graflex Corporation has announced improved models of the 3 1/4 x 4 1/4 and 4x5 Speed Graphic to be known as the Anniversary Speed Graphics.

New features of these cameras include: a lateral shift of the front standard, in addition to the existing vertical shift; a drop-bed locking rigidly and well out of the field of wide-angle lenses; a two-piece linked track for rack-and-pinion focusing of the wide-angle lenses; dual focusing controls for right-hand and left-hand operation; a track-lock to fix the lens in position after a critical focus has been obtained; a one-piece all-metal front standard; a new type of lock that fixes the front-standard very rigidly; and a wire frame viewfinder that telescopes into the front standard when not in use, in addition to the existing parallax-correcting tubular viewfinder that has been accorded such enthusiastic approval by its users. The bed of the new models is all-metal, and it has been made possible to provide for a simplified protected internal coupling of accessory rangefinders.

Fink-Roselieve "Hi-Spot"

Fink-Roselieve announce their new F-R "Hi-Spot" (\$9.00) spotlight. Featured in this spotlight are finger tip focusing from a large to a small spot, heat dissipating fins, sturdy die cast construction, perfect centering of the filament in relation to the reflector, ample ventilation on all sides, standard tripod thread and a special 150 watt projection lamp made expressly for this light.

Fink-Roselieve announces in conjunction with this lamp a new booklet on photographic lighting by John Hutchins. The title is "Third Dimensional Portraiture—How To Get It." The booklet is available on request. Inquiries should be addressed to Fink-Roselieve Co., 109 West 64th Street, New York.

New Prices

Burleigh Brooks, 127 W. 42nd St., N. Y. C., has announced price reductions on the following items:

The Automatic Rolleiflex is \$144.00, without case. (\$10.00 for case).

The New Standard Rolleiflex is \$130.00, without case. (\$10.00 for case).

The 4x4 cm. Rolleiflex is \$127.00, without case. (\$8.00 for case).

The Model II Rolleicord is \$90.00, without case. (\$8.50 for case).

The Model II Rolleicord is \$67.50, without case. (\$8.50 for case).

The popular Dollina "O" with Certar .45 lens is reduced from \$23.00 to \$18.50. The model equipped with an f/2.9 lens is reduced from \$34.00 to \$28.50.

The Super Sport Dolly with built-in range finder and exposure meter now ranges in price from \$60.00 to \$75.00, depending on lens equipment.

The regular S. S. Dolly with a Meyer Trioplan f/2.9 lens has been reduced from \$45.00 to \$40.00. Same, with Schneider Xinar f/2.9 lens is now \$47.50 instead of \$63.00. Equipped with a Zeiss Tessar f/2.8 lens, the S. S. Dolly is now \$55.00 instead of \$75.00 as previously listed.

The Foth Derby now lists at \$19.50 for the 3.5 model and \$24.50 for the 2.5 model.

All Bee Bee Cameras are reduced about 20% and the Pilot Super approximately 15%.

All Schneider Lenses will go back to the prices effective in our price list of April 22nd, with the exception of Angulon and Componar types which have been advanced 15% since then.

UniveX Mercury Contest Rules



More than 200 enlargements were entered in the Mercury Photographic Salon sponsored by the Universal Camera Corporation.

First prize, a UniveX Micrographic Enlarger, was awarded to James Milne of Pittsfield, Massachusetts, for the print reproduced above. Two gross of Gevaert Enlarging Paper was awarded the second prize winner, Bob Thompson, Grand Rapids, Mich., and a third prize of a UniveX Table Tripod went to Miss Irene Fischer of Philadelphia.

Bass Bargainingram

The BASS Still Camera Bargainingram No. 242, 72-page exposition of cameras, enlargers, apparatus and supplies, with all new text books is now ready. A copy of this catalog will be mailed free to readers of MINICAM.

Bargain Catalogue

The Central Camera Company of Chicago announces a "Special Clearance" Bargain Book. Among the items offered are new and used cameras from miniatures to large studio jobs, a wide range of enlargers and enlarging equipment, and hundreds of accessories and supplies, all marked down for clearance.

Copies of this free booklet may be obtained by writing Central Camera Company, 230 South Wabash Ave., Chicago, Illinois.

For Lessons in Photography

J. Ghislain Lootens, F. R. P. S., contributing editor on MINICAM, announces the opening of his new studio at 277 Lexington Ave., New York City, with facilities for group instruction or private lessons in photography.

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Because pocket flashlights of the new pre-focused type can be used as miniature spotlights in the taking of table-top photographs, the makers of "Eveready" flashlights and batteries announced that they will consider for purchase photographs in which illumination has been supplied in whole or in part by pocket flashlights. Five dollars will be paid for each photograph accepted. (This is not an offer to purchase, but merely an announcement that submissions from prospective sellers will be considered.) Photographs should be sent to the company's advertising agency, J. M. Mathes, Inc., 122 East 42nd Street, New York, N. Y.

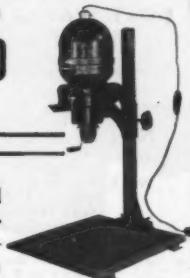
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Contax II, F:2 Sonnar (eveready case)	145.00
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- No. 3. Paper Negatives Book and Sampler
Package \$1.00
(1 copy "Paper Negative" by C. W. Gibbs, A.R.P.S.; 12 sheets 8x10, 2 surfaces, Novabrom, Artex)
- No. 4. Contact Sampler \$1.00
(36 sheets 5x7, 6 surfaces, Artona, Novaglas)
- No. 5. "Simplified H & D" by C. W. Gibbs, A.R.P.S. \$1.00
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New Exposure Guide

The Wabash Photolamp Corporation has just issued a new exposure guide, listing all popular roll films, film packs, miniature films and cut films, with complete exposure tables on their use with any camera. A special page is devoted to flash with focal plane cameras of either the miniature type or the large 4x5" Speed Graphic or Graflex. All popular home movie films and exposure tables for each are also listed. Write for complimentary copy to Wabash Photolamp Corporation, Brooklyn, New York.

Superflash Sunlite Bulb

Wabash Photolamp Corporation, Brooklyn, New York, announces a new flash bulb which incorporates its own blue color-correction filter to change the color temperature of the light source to the equivalent of outdoor sunlight. It can be used with any regular daylight film, indoors or outdoors, without a filter. The new Superflash Sunlite No. 2 (\$2.25) is made in the same A19 bulb size as the regular Superflash No. 2, and is easily identified by its daylight blue color. Its long-peak-light flash characteristics make it suitable for use with either focal plane or compur-type shutters. Complete technical data and exposure tables for use with all color films can be had by writing Wabash Photolamp Corporation, Brooklyn, New York.

New Mini-Flash

The new Mini-Flash (\$12.50) manufactured by Berman-Meyers, Inc., 90 West Street, New York City, features a collapsible reflector which when fully collapsed makes the entire unit 5 1/2" high. The weight is 12 ounces.

An accessory side-lighting feature (\$6.75) consisting of a collapsible reflector, bracket, clamp, and ten feet of cord is also announced. Additional reflectors are sold separately for \$3.75. A leather carrying case (\$2.50) is also available.

Photoflash for Color Photography

A new photoflash lamp coated with a corrected blue filter lacquer enables photographers to take flash pictures in color indoors or out, day or night. Called G-E Mazda Photoflash Lamp No. 21 B (\$2.25) it is similar in construction and shape to No. 21. The new blue lamp is suitable for use with daylight Kodachrome film.

Because it makes available a wealth of photographic "balanced light," the new No. 21B (B for blue) is ideal for use in combination with natural daylight. It is designed for use in taking color pictures by either the synchronized or open-flash method. Its light is scientifically matched to outdoor color films.

Essential technical data pertaining to the new No. 21B lamp are: Voltage range for operation, 3 to 125; bulb diameter, 2 1/4"; maximum all-over length, 5"; base, medium screw.

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Kalart Speed Flash Manual

The newest edition of the Kalart Speed Flash Manual contains complete information on Speed Flash photography including complete exposure charts for all types of flashbulbs as well as exposure recommendations for all films. Details on the use of the Micromatic Speed Flash with more than thirty of the most popular cameras is also given.

A free copy of this manual may be secured by writing direct to the Kalart Company, 915 Broadway, New York, N. Y.

Kalart Fits New Kodaks

Eastman Kodak's two new cameras, the Vigilant and the Monitor can be fitted with the regular Low Tension model of the Kalart Micromatic Speed Flash. These cameras have the Supermatic shutter.

Vigilant and Monitor cameras may also be purchased with the Kodamatic Shutter. The Low Tension model of the Kalart Micromatic Speed Flash also fits this shutter.

Box Cameras with Detachable Flash Units



direct-view finder.
lamps or batteries.

Synchronizer and Multiple Lighting Plug

Special models of the Goodspeed flash synchronizer (\$15) for the Contax, Leica, and Zeiss Super Ikonta B cameras have been announced by Goodspeed, Inc., 220 Fifth Ave., New York City. The problem of compactness has been solved by using six "penlite" cells housed in the reflector casing instead of the usual bulky battery box.

A special multiple outlet built into the flash unit which requires nothing more than an extension cord for use has also been announced. This makes "at-the-camera" technique interchangeable with the multiple lighting procedure.

For further information write to Goodspeed, Inc., or see your dealer.

Westinghouse 21-B

The Westinghouse Lamp Division, Westinghouse Electric & Manufacturing Company, Bloomfield, New Jersey, has announced a new blue-coated photoflash lamp (\$.25) which enables users to obtain true color values on daylight color film exposed indoors or out, day or night. The lacquer coating serves as a color correcting filter, enabling the bulb to produce what engineers term a photographically balanced light of a color temperature of approximately 6500 degrees Kelvin, which meets the specific requirements of daylight color film.

Similar to the standard Marda Synchro Press Photoflash Lamp No. 21 in size, shape, construction, and amount of filling, the 21-B may be used for taking color photos by the open flash method or with synchronized photoflash equipment.

Fotocraft Double Print Roller

The Raygram Corporation, 425 Fourth Ave., New York City, is distributing the Fotocraft Double Print Roller (\$7.75). This roller eliminates air bubbles and insures positive contact with the squeegee plate. It is constructed of black, sulphur free rubber, mounted on waterproof, non-shrinking wood dowels.

ELKAY ADJUSTABLE FILM HOLDER

RAPID
LOADING

\$3.50
Complete



For cut film
and film pack.
Fits practically
all 4"x5" tanks.

Takes 6x9 cm.
2 1/4" x 3 1/4", 9x
12 cm., 3 1/4" x
4 1/4" and 4" x 5"

sizes. Foolproof loading fixture included
at no extra cost. Tempered bakelite.
Loads a dozen.

Made in U. S. A.
At your dealer or write for details.

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Newark, N. J.

FOR BRIGHTER, EASIER PROJECTION



Choose the SVE Tri-Purpose Projector Model DD or Model 150 which permits changing slides from the top and has many other advanced features. Write for circular "Show It Tonight," Society for Visual Education, Inc., Dept. 2M, 100 E. Ohio Street, Chicago, Ill.

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35 MM. BULK FILM
\$1 10¢ 12¢ 15¢
AOFA SUPREME
SUPER XX
PANATOMIC X
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35 ft. MINIMUM order, postpaid in U. S. A.
Cartridges of above—3 for 81. Cartridges of above, 80¢

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IN U.S.A.

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In Case \$2.25

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The Durex Meter has the Accuracy, Convenience, Ease of Operation, and Conveniences of the most expensive meters at a price you can afford to pay. Calibrated in Weston ratings—Eliminates exposure errors and pays for itself in saved negatives—Sturdy yet-light construction. At your Dealer or direct, postpaid. For literature write Dept. M.

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ROLYN SAFELITES



Just out. Available in red, orange and yellow. Interchangeable in 5 sec. Made entirely of quality plastic. Practically indestructible. 4 1/2" diameter. Gives you a beautiful, safe, translucent light directed where you want it. A most unusual value. At your dealer or order direct. State color. Postpaid, only... \$1.75

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ANY 36 EXPOSURE ROLL—1. Fine grain developed; 2. One 3x4 glossy finish print of each 36 exposures; 3. Your negative vaporated (preserves negative forever); 4. Reload your magazine with Super Sensitive Panchromatic film. 36 exposures. 5. Value equal to cost of each order. Total Value \$3.50. Yours for \$1.75. California buyers include sales tax. Write for free mailing bags.
18 Exposures, same as above, \$1.25

HOME-PHOTO SERVICE

HUNTINGTON PARK, CALIF.

BOX 88

Cameras On the Radio

Contrary to a hard and fast rule of the National Broadcasting Company, which prohibits the use of cameras on its premises, Studio 3B has become the happy hunting ground of candid camera fans on Wednesday nights from 10:30 to 11:00 p.m. E.S.T.

Through special arrangements with the powers that be, an exclusive privilege has been granted studio guests who attend the broadcast of "Adventures in Photography," presented over the NBC-Blue Network from this studio. They, and they alone, are permitted to bring their cameras and use them during the broadcast. Even special lighting has been arranged for their convenience.

The hunting is particularly good, for many notables are to be found in the audience each week, and some prominent person who follows photography as a hobby is featured during the popular "quiz" portion of the program.

News travels fast among camera fans, and word that studio shots can be snapped during "Adventures in Photography" has caused the weekly demand for admission tickets to this program to jump to several times the capacity of the studio.



Phyllis Creore and Del Courtney at the mike during "Adventures in Photography" broadcast on Wednesday over the NBC-Blue Network at 10:30 p.m. E.S.T.

Sun Ray Tilt Top

An all chrome pan tilt top (\$3.25), announced by the Sun Ray Photo Company, 295 Lafayette Street, New York, has a special pan feature and an up-and-down tilt controlled by non-slip extension handle which locks the unit. Available at your dealers.

5-Section Tripod

The Sun Ray Photo Company, of 295 Lafayette Street, New York, announces a new sturdy 5-section brass, tubular, telescoping tripod (\$4.50). The four lower sections are of fine milled brass with a spring catch to support each extension. The top section is finished in polished baked black enamel. The section is of solid machined brass, chrome plated. The tripod folds to 15 inches and extends to 5 feet. On sale at all dealers.

Foot Switch

A foot switch made under the patents granted and pending of Lee Engineering Research Corporation, is being marketed by Irving I. Aaron and Associates, Milwaukee, Wisconsin. This switch may be used for enlargers, spot lights, printers, etc.

Slightly larger and thicker than a pocket watch, the switch may be used on either side. It consists of a three inch plated die-cast metal case with a two inch center of moulded bakelite. A slight pressure on this center makes the contact. Electrical capacity is 1000 watts, 10 amps. at 110 volts.

Developix

The "Foto-Eye" printer, used by Developix of New York City makes contact prints of a complete 35mm. roll in one continuous strip. These can be cut apart and filed under their proper headings in a scrap book with detailed information concerning subject, number of roll and frame, and complete exposure data.

More information, price lists, and mailing bags may be obtained by writing Developix, Flatiron Bldg., New York City.

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Packard Contest Winner



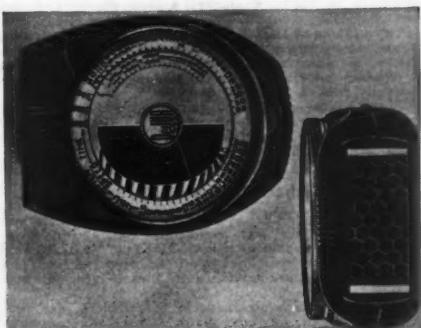
First prize, a Packard One-Ten convertible coupe, was awarded William Langdon, Park Ridge, Chicago, for the above photograph.

Second prize, \$250 in cash, went to Arthur Frederickson, 5206 South Fairfield Avenue, Chicago. James Zdenek, 163 Lawton Road, Riverside, Ill., won third prize, \$100. Winners of \$25 cash prizes were: Warren J. Peters, John Martin, Howard Wolf and Clayton S. Hunt.

Fink-Roselieve Cut-Film-Pack Tank

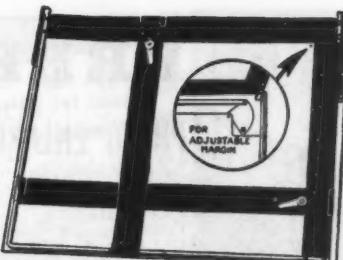
Fink-Roselieve announce a change in price on the F-R Cut-Film-Pack Developing Tank. Heretofore, the tank was sold at a list price of \$9.95. The new list price will be \$5.95.

DeJur Exposure Meter



The new DeJur "Critic" Model 40 Exposure Meter (\$18.75) is calibrated from 1/2 foot candle to 2000 foot candles. The case is constructed from one-piece plastic, and is sealed for protection from humidity and other adverse weather conditions. The film speed ratings are from .3 to 800. The shutter speeds range from 60 seconds to 1/200th of a second.

The meter can be used for black-and-white or full color, still or moving picture work, indoors or outdoors. Source: The DeJur-Amsco Corporation, Shelton, Connecticut.



**New Bee Bee 11x14"
ALL-METAL ENLARGING EASEL**

THIS newly improved darkroom aid has unique locking devices that hold the arms firmly in place and at right angles from the frame. Another feature is an adjustable paper margin guide that automatically keeps the margins even as they are adjusted and sets both margins simultaneously. The arms are of thin but strong black-enamelled steel. They lie perfectly flat and hold the paper on a flat plane. The scales on the sides are shown in quarter-inches, from 11" on one side to 14" on the other. The base is of steel, covered with baked white enamel. Easily kept clean. Priced at only.....

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4x 5—\$ 3.75 ea., lots of 6 prints \$ 6.00
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8x10— 7.50 ea., " " 6 prints 15.00
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We are making a fine quality print, brilliant in color, semi-matte finish, salon mounted. Delivery ten days. Send cash with order or we ship C. O. D. Transparencies insured against loss. Satisfaction Guaranteed.

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Brilliant salon quality enlargements on selected double-weight matt paper.
11x14—2 for \$1 3½x4½ from
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5x 7—6 for 4½x4½ from
4x 6—10 for sq. negatives 25¢

From same or different negatives.

Superior fine-grain developing.

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Curtis Color Printer

The 4x5 Model K Color Printer (\$50 factory assembled) can be obtained in kit form ready for home assembly for \$16.50. Duplicate color prints can be made for practically the cost of black and white prints with this printer and the simplified Orthotone Process.



The complete story of this technique is contained in the latest Curtis book, "Color Printing Simplified," copy of which may be obtained by sending 25 cents to the Thomas S. Curtis Laboratories, 2063 East Gage Ave., Huntington Park, California.

Speedo Print Dryer

The new Speedo Print Dryer (\$14.85) dries glossy prints simultaneously with matte and semi-matte prints. It operates with an electrically driven warm air blower system powered with a Grade "A" Alliance motor, using alternating current only. It scientifically dries prints by employing all three methods of heat transmission—radiation, conduction, and convection. Provides over six square feet of drying surface. Raygram Corporation, 425 Fourth Avenue, New York City, is the eastern distributor.

Colortone Process

The Colortone Process Company announces a radically new process for multi-coloring pictures from black and white prints.

Essentially it is a toning process by which various colors may be obtained by brush application of Colortone on a specially prepared bromide print. Prints may be multi-colored at an average cost of less than 10¢ per print. The complete kit sells for \$5.00. For further information write Colortone Process Incorporated, 315 Venice Boulevard, Los Angeles, California.

Time-O-Lite

The Time-O-Lite, manufactured by the Industrial Timer Corporation, 101 Edison Place, Newark, New Jersey, is automatic. There are no springs to reset or rewind, no clock to watch, no monotonous counting—simply push a button.

Time-O-Lite can be plugged into any A/C current outlet for immediate use. Sold at all dealers. Model M-39 maximum load 750 watts, \$12.50, Model P-39 maximum load 1500 watts, \$17.50.

Besbee Plaston Title Set

Besbee Products Corp., Trenton, N. J., announce new PLASTON letters and characters (\$5.50) for professional-looking movie titles. Made of a new kind of plastic, that will not chip or break, PLASTON letters are pressure-molded into clean, clear-cut outlines.

The letters which are made in white, black, and red, may be placed on any matte black, white, photographic or colored background.

Home Reversal Developer

Graphichem reversal processing powders are compounded for amateur use in the reversing of 8 mm. and 16 mm. motion picture films. Full directions come with each set of powders. They may be used for reversing both movie and still Dufaycolor film.

Source: Superior Bulk Film Co., 188 West Randolph St., Chicago, Ill.

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Accessories For Light Control

"Snoots" (\$7.00 per set of 4) have been designed to confine light to the desired place and to keep stray light from the lens or background. These (Fig. D) take the place of "gobos" or pasteboard light shields. Space is provided between light lens and "Snoot" for inserting one or more diffusers if desired. They are manufactured in sets of four with 2", 3", 4", and 5" openings and are made of 22 gauge steel with inside finish dead black enamel and exterior in grey wrinkled enamel.

"Barn Doors" (\$5.00) (Fig. E) can be used to cut light at any angle desired. They rotate around the light or fold flat when not in use. Space is provided for diffusers. Made of 22 gauge steel, these barn doors are finished inside with dead black enamel. The exterior finish is grey wrinkled enamel.

Source: Bardwell & McAlister, Inc., Hollywood, Calif.

SSS From Photography

The "Gloss-Tone" advertising post card produced inexpensively by the Fort Wayne Printing Company of Fort Wayne, Indiana, opens up a new way of making money for the amateur photographer. Every business concern is a prospect. Tourist camps and filling stations are especially interested in this type of advertising. In fact, every retailer and wholesaler will see ways of using the Gloss-Tone cards.

The photographer not only makes money from the sale of the necessary photographs but he also makes a commission on the sale of the cards without any investment. The company executes the order and sends it out C. O. D. paying the commission to the salesman direct.

Write for more details to the Fort Wayne Printing Co., Fort Wayne, Ind.

New Tri-purpose Projector Announced

The Society for Visual Education, Inc. has announced a 150-watt projector (Model DD) taking 2 x 2" Kodachrome or Dufaycolor slides and 35mm film strips, either single frame or double frame. This model incorporates the following features: Semi-automatic slide changer; positive film movement control; combination aperture masks for changing quickly from single to double frame pictures or vice versa; and the S. V. E. rewind take-up which rewinds the film as it is being shown and inserts it into a can in the proper sequence for the next showing.

New Moving Picture

Sons of the Sheik, starring Rudolph Valentino and Vilma Banky has been released by Nu-Art Films, Inc., in 16mm. sound-on-film and silent film for amateur cine enthusiasts.

Book Reviews

PHOTOGRAPHY, ITS PRINCIPLE AND PRACTICE, Third Edition, by C. B. Neblette, F.R.P.S. 590 pages, numerous illustrations and diagrams, indexed. *D. van Nostrand Company, Inc.*, \$6.50.

The complete descriptions and full directions for every photographic method and process are made especially useful and available by a wealth of supplementary information.

Real Economy!

WONDERLITE photolamps provide brighter light, hours longer than ordinary photosfloods. They give genuine satisfaction from both a price and performance standpoint. Insist on Wonderlite Lamps next time you buy.

(No. 1) FIVE HOUR LAMPS
Picture Flood... 35c Filter Flood... 35c Green... 75c

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Picture Flood... 65c Filter Flood... 65c Green... \$1.50

WRITE FOR COMPLETE PRICE LIST.

WONDERLITE COMPANY
14-M Northfield Avenue, West Orange, N. J.

SAVE With WHOLESALE'S AMAZING PRICES

• Leica Model G, F:2 lens with case, LIKE NEW	\$115.00
• Contax 3, F:1.5 lens with case, LIKE NEW	175.00
• Autoflex Reflex Camera, F:2.9 Compur rapid shutter anastigmat lens	59.50
• Canvas Carry All Case holds all type cameras and accessories	3.50
• Argus Eliko Camera, Case, All Cases	6.00
• Argus C2 or 3 camera case, NEW	3.00
• Kodak Duo No. 620, 3.5 lens, compur rapid shutter with case, USED	35.00
Completes line of cameras, camera cases, projectors and all photographic items of all types and styles at wholesale prices.	

Send for FREE bargain list.

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29 W. 24th Street Dept. 3-6 New York, N. Y.



Super ELECTROPHOT EXPOSURE METER

Highly sensitive; easy to read; Universal use: Movies, Stills; All Film: Black and White, Colored; All Shutter Speeds; Indoor, Outdoor; All Film speeds; in popular ratings; All-American materials and manufacture. Amazing new low price! See it at your dealer's. Write for free folder!

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Simple, practical, compact—easy to operate. Fits all popular make cameras. Put it on your camera and adjust it yourself in a few moments. Complete with synchronizer, reflector, batteries, suede leather carrying case, \$13.50. Send for literature.

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FILMS

DEVELOPED
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\$1.00

Wrap a dollar bill around your
36-exposure roll and let us
show you a really good job of
fine grain developing, with each good exposure enlarged
to $3\frac{1}{2} \times 4\frac{1}{2}$. All for only \$1.00. Regular 6 or 8
exposure films with 2 enlargements. 25c
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1500 Photo-Cine ITEMS

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to buy Time and Money sav-
ing equipment. It has been
traded. A POST CARD BRINGS
YOU! What do you need?
Trades. Terms. Film rental
library (sound, silent).

EXCLUSIVE ITEMS

NO-HEAT GLASS

Protects negatives from
heat in Enlarger or Pro-
jector at 35c up

At your dealer or direct

DESENSITIZES Fastest
Film. Devolves in bright
light 50c

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QUICK
SHIPMENTS

35 MM FILM

PROMPT
SERVICE

25 Ft. Agfa Ultra Speed.....	\$1.00
25 Ft. Agfa Supreme.....	1.00
25 Ft. Eastman Plus X.....	1.00
25 Ft. Eastman Super X.....	1.00
25 Ft. Dupont Superior.....	1.00
Daylight Film Wind (was \$10).....	2.95

Postpaid in U.S.A. if Cash with Order.

ASK FOR FREE BULLETIN No. 7

Greensburg Photo Supply Co.
No. 7 Fisher Bldg., Greensburg, Pa.

Simple diagrams and vivid photographs make clear the arrangement of lens systems, the chemical properties of sensitizing dyes, and many other scientific fundamentals. Complete formulas are given for the preparation of emulsions, developers, fixing baths, reducers, intensifiers and toners. A complete bibliography puts at your instant command the entire world literature on photography—so that you can instantly find a reference giving complete particulars about any specialized subject in which you are particularly interested. Carefully chosen photographs clarify the author's directions for obtaining the best results in all practical aspects of everyday photography.

PICTORIAL JOURNALISM, by Laura Vitray, John Mills Jr. and Roscoe Ellard. 437 pages, 30 illustrations, 14 diagrams. Indexed. McGraw-Hill Book Company, \$4.00.

Unique in that it applies the principles of graphic design to the planning of newspaper pages, this book gives a comprehensive treatment of the basic knowledge involved in the various skills required; photography, picture editing, photo engraving, and picture layout. It gives the free lance photographer an understanding of newspaper problems which will make his work more acceptable to editors.



"He says ever since he was a boy he's been afraid of the dark!"

KAMERA KWIZ

(Continued from page 78)

10. A great amount of emphasis is placed on a thorough, final wash. Why?

- A. Chemicals left in film or paper will cause stains later.
- B. Prolonged immersion in cool water hardens the film.
- C. A long wash insures the removal of the anti-halation backing.

11. If you underexpose an enlargement on bromide paper and try to force development over an excessively long period, it will finally:

- A. Bleach
- B. Blister
- C. Fog
- D. Reverse.

12. Which of the following men were not in on the ground floor of photography?

- Talbot
- Franklin
- Voltaire
- Newton
- Niepce
- Van Dyke

Answers to

KAMERA KWIZ

1. Manual manipulation produces more agitation in a tray.

2. (C). When films are not properly spaced during processing, fresh developer may be prevented from reaching certain areas.

3. (A). Since the finest of fine grain formulas cannot reduce an already coarse grain, it would be best to use a fine-grain film and careful processing in ordinary developer.

4. Smoke, drifting between the lens and paper may cause slight diffusion when making enlargements.

5. (B). Although it is safer to wait for (C) until the film or paper is immersed in the Hypo.

6. Solutions siphoned in the following order would not be contaminated for photographic use:

1. Developer
2. Short stop
3. Hypo

7. Mercuric Chloride and Corrosive Sub-limate are the same.

8. A. False. Overexposure increases density but decreases contrast.
- B. A glossy print may be soaked and ferrotyped at any time.
- C. True. Kodachrome transparencies are positive images and would naturally print as negatives.
- D. True. You would simply have twice as much solution.

9. It was partially submerged when immersed, so that part of the print received no development.

DeJUR 5A PHOTO-ELECTRIC EXPOSURE METER

\$11.50 With Sling

(Pigskin Carrying Case, \$1.00)



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Edit your films

By WILLIAM L. MORGAN
Illustrated by the Author



1. A loupe or jeweler's magnifying glass may be used to examine individual frames.

WHEN films are returned from the processing lab, they are seldom ready for showing. Scenes must be cut out; some must be shortened; others rearranged to give proper sequence. This process of editing is as important as the actual shooting of the scenes, for it is by editing that films are given continuity and meaning. Showing your movies "in the rough" with no attempt at refinement or polishing would brand your movie-making efforts as the worst kind of amateurishness.

The equipment used for editing may be as simple or as elaborate as your desires and pocketbook dictate. You could edit with your projector and a film splicer, though it would be a tedious process.

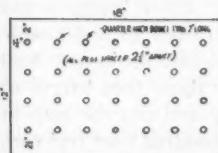
Editing should be done, if possible, on a table in some undisturbed corner which can be used for film editing and nothing else. On this table should be mounted a pair of geared rewinds about thirty inches apart. Midway between the rewinds the splicer is mounted. A place for the bottle of film cement is provided to the right of the splicer by tacking small wooden blocks to the table to hold the bottle in position. If you buy rewinds and splicer mounted, a recessed hole will be provided for the cement (and water if you need it). A mounted set should be fastened securely to the editing table with a small seat clamp, to insure steadiness when working.

The viewer, if you have one, is mounted directly behind the splicer as in Fig. 5. The viewer is a device that projects a frame of film on a small screen, allowing you

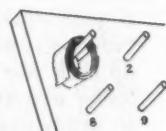
to see it in detail and to locate the scene you are looking for. A viewer now on the market projects the action of the film as well as you draw the



3. A stripping flange is made by removing one side from a 100' reel.



2. Scenes are separated and hung on numbered pegs of a peg board. Egg cartons or a quarter size type case can be substituted for the peg board.



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4. Separate cards are used for each scene placed on the peg board.

film through it. Viewers are a great aid in editing, and for the smaller 8mm film they are particularly desirable.

If your equipment does not include a viewer, a jeweler's magnifying glass (called a "loupe"), Fig. 1, or a thread-count glass, used by clothiers, will help you to examine individual frames more closely and to match action in scenes.

You should also have a stripping flange, which you can make. This is used for winding off lengths of film, a tedious process if done by hand. The stripping flange, Fig. 3, is made from an ordinary 100' reel. Simply remove the side with the round hole. The half-reel remaining is the stripping flange, used on the rewind as any reel. However, to make it easier to slip off the film after it is wound on, it is a good idea to cut the side that was removed so that it will slip completely over the core of the reel. Marks on the reverse side, where it was attached, will guide you in this. This free piece is slipped on the core of the stripping flange before film is wound on it and can then be used to push the roll of film off easily.

You will need some means of keeping the small rolls of film separate and in good order. One solution for this is the peg board. A peg board, Fig. 2, can be made from a piece of plywood about 12x18 inches. Drill quarter-inch holes in it spacing them $2\frac{1}{2}$ inches apart. Two-inch pieces of quarter-

inch dowel are driven into these holes. Each peg should be numbered.

Egg cartons, Fig. 2, will serve the same purpose as the peg board. You can join two or more of these boxes together with paper fasteners, or a quarter-size type case can be used. Be sure each division is large enough. A case used for extra figures and spaces is about what you want.

A de-luxe editing outfit would have a piece of opal glass about 6x8 inches set into the table, flush with the top, and lighted from underneath. This is helpful in watching for scenes during rewinding. A white card, tacked where it reflects considerable light, makes an acceptable substitute.



5. The viewer permits the editor to locate and examine any scene desired.

You should have short lengths of leader on hand, which you can probably cull from discarded films. They should be black. Clear leader is not as good, since it causes an undesirable "white screen" when projected. Roll up each two or three foot length of leader separately and put the rolls in an empty four hundred foot reel can, where they will be available when you want them.

To complete the editing equipment, you will need a pencil and a quantity of 3×5 index cards. As you will use each card once and then throw it away, get your printer to cut you some from a cheap, light stock.

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the processing laboratory, run them through on the projector several times to familiarize yourself with them. If there are more than a few bad scenes which must be removed entirely (scenes greatly over-exposed or under-exposed, false starts, camera failures, etc.), it is a good plan to make a rough edit before going further. This can be done simply and quickly at your editing table, as the very dark and very light scenes will not be difficult to locate. If you are working with more than one hundred foot rolls, of the same subject, splice them together at this time onto a four hundred foot reel.

Of course, as you remove scenes,



6. After the editing each scene is spliced to the preceding scene.

you will splice the loose ends of the film, remaining on the reels. The ends must be placed on the splicer emulsion (dull) side up. Scrape until the emulsion is removed, but no more. You need just enough cement to cover the scraped surface, and the splicer should be clamped shut immediately after it is applied as in Fig. 6. Avoid using too much cement.

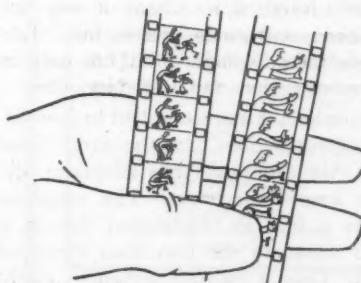
What to do with the bad scenes is a problem, particularly to the beginner, who perhaps secretly longs to show them anyway. Over-exposed shots *can* be intensified, under-exposed shots *can* be reduced (speaking only of black-and-white film),

though the results seldom justify the time and bother, unless the shot is very important to the cine amateur and is irreplaceable.

Returning to the projector with the film, you will run through it this time with a more critical observation of the continuity of scenes and possibilities for its improvement. Make a list of the scenes as the film is being projected, jotting down the few words that will identify each scene in your mind. At the side make a note of any changes you think should be made, such as, "Cut camera unsteadiness at end", "Combine with preceding long shot", "Should follow shot of unloading car", "Cut bad frames", and so forth.

When the alterations you wish to make are fixed in your mind, film and notes are taken back to the editing table. Your editing procedure at this point depends upon the condition of your films. If scenes are pretty much in correct sequence (as they might be, say, in the filming of a motor trip, requiring only shortening and the removal of an occasional repeat scene—you can do the job simply by running the film on the rewinds and making the desired adjustments.

If, however, there are many scenes out of sequence, and particularly if you are trying to build a story continuity not planned (Page 120, please)



7. To cut together two series of identical action find the frames on each where action coincides. Cut both scenes at this point and splice.



Zooming up from a long shot to a closeup is a favorite Hollywood device. The effect can be obtained by changing lenses, from one camera position, using lenses of successively greater focal length.



WHEN working with movie cameras it seems as though we have to be far away from our subject to take ordinary shots, and yet with long shots the image seems too small.

The regular cine lens is, relatively, a long focus lens. A one-inch lens is standard on the 16mm. cameras and one inch is about twice as long as the diagonal of the image on the film. That is long focus because on still cameras the focal length is about equal to the diagonal of the image. Being long focus it then means that if we wish to take a full length or three-quarter shot of a person we must stand farther away than with our still camera. But to get a good sized image of objects over one hundred feet away a one inch lens does not seem long enough. To obtain good sized images of distant objects we must therefore use a telephoto lens.

Cine telephotos are supplied in two different constructions. In the same focal length, we can have true telephoto and simple long focus lenses. The telephoto type is a lens so constructed that it is placed closer to the film than the focal length. Thus a six-inch telephoto might extend only three or four inches from the camera while a simple long focus lens would be placed six inches from the film.

Telephotos are of more complicated construction and therefore cost more. An advantage is that they are not as bulky as long focus lenses, but both types work equally well.

If the photographer has a limited budget he can construct his own long focus lens with a lens from a still camera. His local camera repair shop can thread an extension tube to screw into the lens mount of his camera, and in the other end of the tube is mounted a two or three inch lens taken from a still camera, set so that it is focused on infinity.

Though a variety of long focus lenses is a great help in cine work in 16 mm., the two inch lens is one of the best for all around use. Good pictures can be made with this lens with the camera held in the hand. For longer focal lengths the use of a tripod is a necessity. All camera movement is greatly magnified when using a telephoto lens. To be assured of rock-steady pictures on the screen, use a tripod.

With extremely long focal lengths, it is often necessary to have a separate support for the lens. The large telephotos extend

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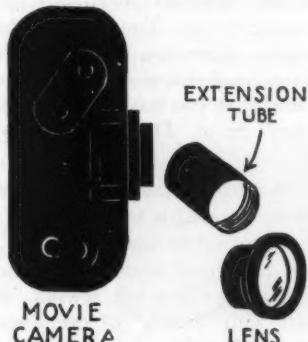
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a considerable distance from the camera and are very heavy. The weight is held by only the few threads in the lens mount. This is not sufficient. Vibration will cause a strain and may result in stripping the threads and having the lens drop off. When you obtain a large telephoto lens talk over the matter with your dealer and see if it needs a special support.

In addition to a tripod as an essential accessory in telephoto work, a yellow filter is desirable to minimize haze. The longer the telephoto, the greater the diffusion caused by haze in the atmosphere.

When panoramic with a telephoto always keep the object of greatest interest exactly in the center of the finder. When working with these greatly magnified images the slightest movement is greatly magnified.

A telephoto enables you to get sport shots though you are seated far up in the stands, and when it comes to making candid shots of camera-shy subjects there is nothing that takes its place. The telephoto then becomes more than an accessory—it becomes a necessity.



A long focus lens from another camera, or from a second-hand source may be adapted to telephoto use by improvising an extension tube. The distance from the iris to the film, in any camera, is equal to lens's focal length.

It is exactly a hundred years since the first telephoto lens, the "Orthoscope," was designed by Petzval; but it was not until 1905 that the first of the modern fixed magnification telephoto objectives was introduced, and the telephotos in use today are of even more recent design.

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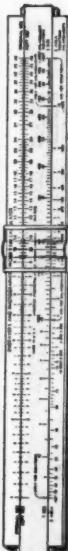
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Edit Your Films

(Continued from page 117)

at the time of filming, the only way is to separate and remove each scene.

Start winding the film on the stripping flange, and when you come to the end of a scene, cut and remove it, noting which scene it is. Hang the rolled-up scene on the peg board. On a 3 x 5 index card, Fig. 4, make a note of the subject-matter of the scene, stating also whether it is a long-shot (LS), medium shot (M), or close-up (CU). Make a note also if the scene is to be shortened or bad frames are to be removed, or if two scenes of the same action are to be combined. In the upper right-hand corner of the card write the number of the peg on which the scene was placed.

In order to have heads out on the small rolls of film, work from the end toward the beginning of the reel. Every scene is wound up and placed on a numbered peg, and when you are through, you will have as many index cards as scenes. These cards can be sorted easily into the continuity you tried to visualize as the film was projected. As you sort the cards, other and better arrangements of scenes may occur to you. You may decide to cut a lengthy scene into shorter lengths for use in several places in the film or you may find that you have a few scenes that just don't fit in. Don't hesitate to delete them.

To re-assemble the film, take the scene you have decided is number one (it may be any number on the peg board), splice a short length of leader to it, and wind it on a reel on the left rewind. Be sure to start with "heads" of every scene. If you remember that the top of the frame enters the reel first, you can't go wrong.

Cut and otherwise adjust scenes according to your notes on the cards. In matching action, where a medium or long shot is to change to a close-up, the action continuing, locate the frames in each scene, Fig. 7, where the action is identical. After first checking to see that lengths of each scene are as you want them, cut the scenes. Leave an extra two or three frames

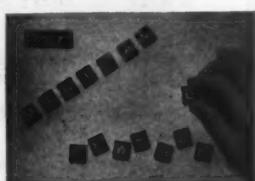
to allow for loss in splicing and to make a smoother transition from one scene to the next, as the eye will take a moment to catch the action blending from one scene to the following one.

When the whole film is put together according to the cards, rewind it and go back to the projector once more. You may see a few scenes that need to be shortened further, and possibly you will want to rearrange your continuity slightly. Make notes of these changes, and also make a note of any abrupt changes of place or action which seem to require explanation—titles are called for here. The film should be complete and explanatory in itself, requiring no running comment as it is being projected. Often the need for a title can be eliminated by shooting a few additional scenes to fill in and act as transition. Even though the original filming is done far from home, the ambitious cine worker can stage a medium shot or close-up with authenticity and a reality no one will doubt, in his own backyard.

Anagrams for Movie Titles

For those movie makers who are poor letterers or who have tired of typewritten titles, here's an unique titling suggestion. Anagrams may be filmed flat or on edge and may even be animated to show moving letters for trick single frame effects.

For monochrome filming, white letters on a black background are suitable, but with Kodachrome variations may be had through using the red and yellow letters. Human ingenuity can play its part in the arrangement of the block letters which may be filmed lying down or standing on edge. For a trick effect, expose a single frame of film as each new letter is placed in position. When projected, the animation sequence will show the title actually spelling itself out, letter by letter, until all the wording is revealed. If such a title is shot vertically, tilt the board holding the letters and they will slide out of camera view for an unique "wipe."—O. SPRUNGMAN.



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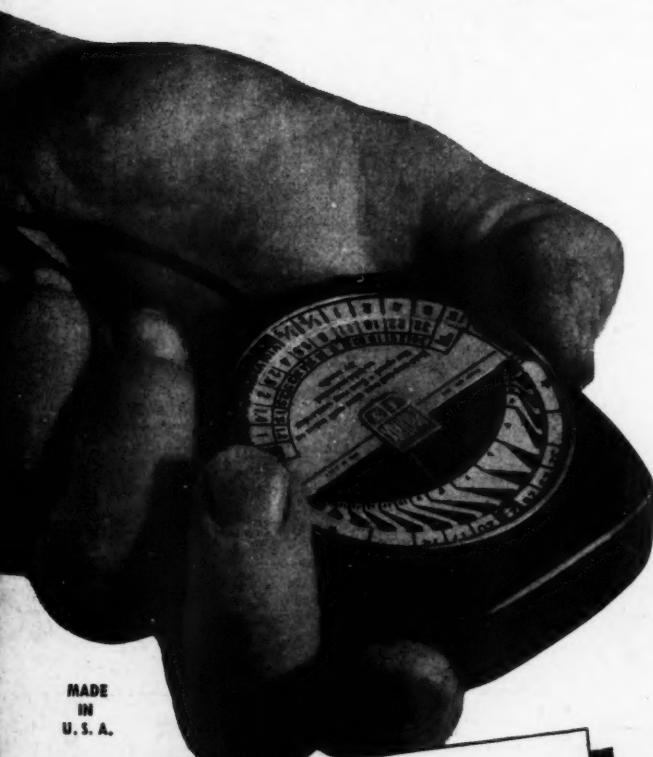
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